

ANNUAL REPORT: THE WISE RESPONSE SOCIETY INC. August 25, 2015.

Alan F. Mark, FRSNZ, KNZM, Chair, Wise Response Society.

This report is for the period following the Special General Meeting on December 1, 2014.

The Society has been active on several fronts over the last nine months and these are reported on below, under the various issues.

Strategic Risk and Resilience Panel: A response (unclassified) was received on 5 December from Catriona Robinson, Director, National Security Systems Directorate, responding to our earlier (14 November) message to Ian Fletcher, Chair of the SRRP, indicating that our interest in the apparently mutual concerns and interests of this Panel. Our response with a request for a copy of the terms of reference of the panel, was responded to and the terms of reference obtained later that day.

A further message from Ms Robinson on 5 February noted at Ian Fletcher – the Director of GCSB – has recently resigned and therefore the organisation was not currently in a good position to be able to respond meaningfully to our request but that meantime, we might provide additional information as to whether WR generates or commissions research or other commentary on matters relating to national risks, whether in relation to the specific issues which Wise Response has raised as being of concern, or more generally?

We responded on 3 June that, as suggested we should wait for the appointment of a successor to Mr Ian Fletcher as Chair of the SRRP and also indicated that WR had meanwhile formally approached the Academy of the Royal Society of New Zealand with a resolution to their Fellows Annual Forum regarding a request for the Academy Council to organise an expert panel to further address the serious issues of Climate Change and associated mitigation and adaptation options for New Zealand. Further, we would certainly appreciate the opportunity to meet with the SRR Panel, when convenient and wish to maintain some appropriate dialogue with it via your role. No further messages have been exchanged since this time.

Royal Society of NZ Annual Fellows Forum: Joint Fellows Alan Mark and Peter Barrett wrote to the Academy President, Sir David Skegg on 10 October as follows: Dear David,

We are writing as Fellows of the Royal Society of New Zealand (RSNZ), and as scientists (with one of us [AFM] convener) associated with the 'Wise Response' National Risk Assessment appeal (see Annex 1). One of the concerns of this group is the growing risks to New Zealand's environment and society resulting from rising greenhouse gas emissions.

Six years ago RSNZ released a Statement summarising serious and increasing concerns at rising greenhouse gas emissions expressed in the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC). Since then greenhouse gas emissions (both global and NZ)

have continued to rise, and a Fifth IPCC Assessment Report has been released, expressing even deeper concerns. The IPCC AR5 Science report concluded "Continued emissions of greenhouse gases will cause further warming and changes in all components of the climate system. Limiting climate change will require substantial and sustained reductions of greenhouse gas emissions", with the Mitigation report noting "Mitigation requires major technological and institutional changes including the upscaling of low- and zero carbon energy" and "Delaying mitigation is estimated to increase the difficulty and narrow the options for limiting warming to 2°C." We suggest it is time for RSNZ to address the issue again in this light, and in a more comprehensive way than in 2008.

A number of sectors of New Zealand society have been responding to growing concerns with reports and plans for action to address the various consequences of rising greenhouse gas emissions, and we note among these the current investigation into sea level rise by the Parliamentary Commissioner for the Environment. However the evidence is now clear that our collective response has been ineffective and acknowledged to be inadequate (see notes in ANNEX 2). The Wise Response Society Inc. believes New Zealand, as a small, naturally well-endowed, independent nation, should provide some leadership, along the lines of Denmark's example, toward a sustainable future. We believe the urgency of the situation imposes a moral obligation on every country in the developed world, including New Zealand, to reduce their per-capita GHG emissions to achieve this and sustainable ways of responding to the inevitable impacts which have widespread societal implications for us. However we also recognise that every nation must find its own path for this, and that we currently lack effective overall guidance on how to make progress on this pervasive issue. We therefore strongly endorse the statement from the Executive summary of the Prime Minister's Chief Science Advisor's report that "A risk management approach is needed when New Zealand faces the likelihood of significant impacts. ... Active and adaptive management is required."

To that end we believe RSNZ is uniquely placed for setting terms and framing a comprehensive discussion around the future risks of climate change, as well as for engaging the expertise needed for an informed assessment. We therefore seek your permission to move and second the following resolution under "Other Business" at the Fellows' Forum **"to request that the RSNZ Academy Council convene a group of experts to review and assess the risks associated with recent and projected trends in greenhouse gas emissions, the likely consequences for New Zealand in future decades and centuries, and consider options for both mitigation and adaptation, taking into account environmental, social and economic considerations."**

Yours sincerely,

Alan Mark FRSNZ, KNZM; Peter Barrett FRSNZ.

ANNEX 1. Notes on the Wise Response Society www.wiseresponse.org.nz

The Wise Response Society was launched on March 8, 2013, because a group of New Zealanders believed that "Today New Zealand faces numerous risks, which are all the more risky for being largely unacknowledged. We believe Parliament should build on its proud tradition of foresighted collective response to risks, and initiate a risk assessment as the first step in achieving a more secure future."

We submitted a petition to Parliament last April with a request to address the perceived risks in their policy making. The petition to the House of Representatives reads:

"We the undersigned, request that the House:

- 1. urge Government to undertake a National Risk Assessment of: Economic / Financial Security, Energy and Climate Security, Business Continuity, Ecological / Environmental Security, and Genuine Well-Being; and:*
- 2. that from that Risk Assessment, develop and implement cross-party policies to avert any confirmed threats to future generations of New Zealanders."*

There are numerous unprecedented global trends and threats which, individually or in combination, could destabilize New Zealand's future wellbeing. We believe it an ethical imperative that NZ be proactive in assessing and avoiding these, rather than risk being caught unprepared.

"Mo tatou, a mo ka uri a muri ake nei: For us and our children after us."

ANNEX 2. Points underpinning both the need and the urgency for a national risk assessment of the future consequences of climate change for New Zealand and possible policy options for both adaptation and mitigation

1. The scientific consensus is approximately 97% in favour of the theory of anthropogenic climate change (<http://iopscience.iop.org/1748-9326/8/2/024024/article>). The evidence is summarised in a new climate change website sponsored by the American Association for the Advancement of Science (<http://whatwewknow.aaas.org/>)
2. The Prime Minister's Chief Science Adviser, Sir Peter Gluckman's July 2013 report (<http://bit.ly/1rt8Vdb>) stated that: "There is unequivocal evidence that the Earth's climate is changing, and there is strong scientific agreement that this is predominantly as a result of anthropogenic greenhouse gas emissions. ...there is strong scientific consensus on the general trends and drivers of recent climate change. The most probable future scenarios are cause for concern."
3. The Fifth Assessment Report of the IPCC was released in three stages beginning with the science in September 2013, the consequences in March 2014 and policy options in April, 2014. Summaries for Policymakers are available from www.ipcc.ch. A 4-page summary with a New Zealand focus from the NZ Climate Change Centre: (<http://bit.ly/1rtcVdy>) stated that: "As temperatures increase so do risks of serious and irreversible damage."

4. Two independent global business groups acknowledge the urgent need for planning and action in recent reports on credible financial pathways to a low carbon world. (PriceWaterhouseCooper - <http://www.pwc.co.uk/assets/pdf/low-carbon-economy-index-2014.pdf> ; HSBC - <http://www.hsbcnet.com/gbm/global-insights/insights/2014/keeping-it-cool.html>)

Moved by AFM and seconded by Prof. Howard-Chapman the resolution was discussed and then was passed unanimously.

The RSNZ Council proposed that a workshop of invited key individuals be organised for Monday 16 February to give them advice on what would be the best way to progress this work. The following were invited:

Paul Atkins, *Chief Executive, National Energy Research Institute (NERI)*
Professor Peter Barrett FRSNZ, *Emeritus Professor, Antarctic Research Centre, VUW*
Dr John Caradus FRSNZ, *Vice President, Royal Society of New Zealand (Chair)*
Dr Ralph Chapman, *RSNZ Climate Expert Panel (VUW)*
Dr Andrew Cleland, *Royal Society of New Zealand*
Dr Julie Hall, *RSNZ Climate Expert Panel (New Zealand IGBP (Global Change) Expert Panel)*
Professor Martin Manning, *School of Geography, Environment and Earth Sciences, VUW*
Professor Sir Alan Mark FRSNZ, *Department of Botany, University of Otago*
Dr Andrew Matthews, *RSNZ Climate Expert Panel*
Professor Tim Naish FRSNZ, *Director Antarctic Research Centre, VUW*
Sir Geoffrey Palmer, *Distinguished Fellow, New Zealand Centre for Public Law, VUW*
Dr Andy Reisinger, *New Zealand Agricultural Greenhouse Gas Research Centre*
Professor Ralph Sims, *Centre for Energy Research, Massey University*
Dr Janet Stephenson, *University of Otago Centre of Sustainability*
Dr Andrew Tait, *New Zealand Climate Change Centre*
Prof Alastair Woodward, *Professor of Epidemiology & Biostatistics, UoA*
Dr David Wratt, *RSNZ Climate Expert Panel (IPCC Bureau)*

Following a most successful workshop the RSNZ Council considered its recommendations and agreed to the Society undertaking the two separate work streams, being:

- A succinct summary digesting existing New Zealand information around the risks associated with recent and projected trends in greenhouse gas emissions, and the likely consequences for New Zealand in future decades and centuries (to be completed as soon as possible).
- An in-depth look into mitigation options for New Zealand, with long term views, including risks, co-benefits, spill over impact, opportunities and barriers at local and national levels (taking 9 – 12 months).

The third work stream around adaptation will be considered by Council at a later date.

The Council also appointed convenors for the two panels and both have agreed: Dr David Wratt for the expert panel which will function as a small writing group for the summary and Professor Ralph Sims for the expert panel for the in-depth look into mitigation.

The convenors will be asked to suggest the membership of the panels and then prepare a work plan that includes the need to engage those the RSNZ is trying to influence from the beginning of the work, involves young people, considers effective communication to the key audiences and involves a wide range of organisations and individuals in the preparation of the advice. The panel membership proposed by each convenor will be submitted to Council on 21 April for approval.

In order to ensure this work can proceed as rapidly as possible the Society will be engaging a part-time contractor to support the convenors.

These panels have yet to report.

Finance and Expenditure Select Committee: I received a brief letter from the Chair of the Committee, Mr David Bennett dated 1 April, citing the petition which had been transferred to the Committee on 16 July, 2014. An 11-page report from The Treasury was attached, which claimed that each of the five issues of concern “are more or less being addressed by the government through a range of initiatives” and moreover, that “significant effort is being made to adopt a systems approach that takes us beyond simple risk assessment to resilience ..the ability to adapt to both acute shocks ... and to chronic stresses ..”

I replied on 16 April as follows:

Dear Mr Bennett,

I acknowledge receipt of your letter of 1 April last plus the attached 12-page report from Mr David Taylor, Manager of the National Infrastructure Unit, as an initial response to the Petition (2011/106) presented to Parliament on April 9, 2014 on behalf of the Wise Response Society Inc. This petition requested that: the House note that 4,465 people have signed the Wise Response petition calling on the Government request that the House:

**“(1) urge Government to undertake a National Risk Assessment of: Economic Security, Energy and Climate Security, Business Continuity, Ecological/ Environmental Security and Genuine Well-being, and:
(2) that from that Risk Assessment, develop and implement cross-party policies to avert any confirmed threats to future generations of New Zealanders.”**

Our Society is pleased to learn that your Committee is currently considering this Petition, together with the material which we provided in support of it. We note that the ‘comment’ requested from the Treasury forms the substantial part of the response to date.

We find the Treasury Report particularly weak on several aspects of our concern, most notably climate change, the Resource Managements Act, the Government's environmental reporting regime, and particularly the basic principle of sustainable management of our natural resources. Indeed it appears to reflect Government's current policies but, unfortunately does not really engage with the major issues of our concern.

The programmes and analyses outlined are mostly focussed on the country being in a position to be able to be successfully reactive to major events through internal and external resilience, rather than proactive in being prepared as a country for what may possibly happen. i.e. through the fostering of long-term sustainability and self-sufficiency. There is not really any indication of the perceived need for a genuine and holistic, desirably cross-party **risk assessment** of each of the five major issues we have identified.

Since we have discussed these issues in some detail with several of the political parties, and received positive responses from most and formal endorsement of three, we believe the Select Committee process may be one of the most likely ways to progress wider appreciation of our concerns and implementation of the recommendations.

We believe that New Zealand is presently in a more favourable position than most other countries to plan for ensuring a sustainable future and could, by example, indicate how this could be achieved for the security and welfare of present and particular future generations of humans, and the many ecosystem services, both natural and man-made, on which we all are absolutely dependant.

We believe time is of the essence and therefore would appreciate the opportunity of having a delegation being invited to discuss these fundamental issues with your Select Committee, as a matter of urgency.

Sincerely,

Alan F. Mark, FRSNZ, KNZM. Emeritus Professor, University of Otago. Chair, Wise Response Society Inc.

We were duly invited to have a delegation of up to three present our case to the Committee with a 30 min. presentation on 1 July. We were permitted a deputation of four given the breadth of the issues and, to give breadth and balance the following were selected by popular vote: Susan Krumdieck, Janet Stephenson, Paul Young and me. We presented a 9-page submission ahead of time (see Attachment 1), and a 5-page submission on the day (see Attachment 2).

Our presentation was supported by some 50 people, including our Patron, Sir Geoffrey Palmer, and prompted several questions from Committee members. We are yet to receive a formal response from the Committee. Radio New Zealand featured Susan Krumdieck in a 20 minute interview by Kathryn Ryan

on the morning of the presentation and a section of my presentation featured in the subsequent “To-day in Politics” and “Focus on Politics” programmes.

A public forum for Wise Response was organised for the previous evening by the Institute for Governance and Policy of Victoria University. Chaired by Michael Macaulay of the Institute, with the theme: “It is not a Target: The safety limit has been exceeded. Now we face a failure limit, with risks too severe to ignore”, Susan, Paul and I spoke, as well as Professor Ralph Chapman of Victoria University of an audience of some 120 people. This was a good forerunner to our presentation to the Select Committee and also allowed us to promote their support for this challenging exercise.

The New Zealand Climate Target and Intended Nationally Determined Contributions (INDCs).

The Ministry for the Environment, on behalf of the Minister of Climate Change Issues, Hon Tim Groser, issued an 18-page discussion document: “New Zealand’s Climate Change Target: Our contribution to the new international climate change agreement”, on May 7, with submission closure on 3 June. The Ministry also announced ten public meetings around the country from Auckland to Invercargill (but curiously omitting Dunedin) between 13-20 May, on: “How to find out more”. Following a complaint, Dunedin was included, on May 21 with the initial venue; Kingsgate Motel, switched to the Town Hall’s Glenroy Auditorium (with a capacity of ~200, which was almost reached) on the morning of the meeting. Only four government, mostly MfE, officials were present, they said less to answer questions than to hear responses to the discussion paper: plenty, mostly critical and of concern, were aired. Meanwhile Wise response organised a public meeting at very short notice, at the University’s Castle One Theatre, which I organised and chaired, with eight speakers. They were: Bob Lloyd of the Physics Department, on “How much carbon can we burn”; Janet Stephenson of the University’s Centre for Sustainability, on “Transitioning to a low carbon future”; Bill Lee of landcare Research, on “Effects of global warming on our biodiversity”; Rose Penwarden of Oil-free Otago, on “Why we must curb our fossil fuel use”; Alex McMillan of the NZ Climate and Health Council on, “Climate change and human health”; Jim Flynn of Otago University, on “Our targets must look beyond New Zealand”; John Cocks of Sustainable Dunedin City on, “Planning a sustainable Dunedin City”; and Letisha Nicholas of GenZero, on “A GenZero perspective”.

The meeting was very well attended with some 200 present and generated a lively discussion and also a resolution which was passed unanimously: Moved AF Mark; seconded S Matheson: ***That this public meeting strongly urges the New Zealand government to endorse both the moral imperative and the economic, social and environmental opportunities of a rapid transition to a low-carbon economy and society. To this end, it should adhere to the mitigation option proposed by the IPCC Mitigation Report 2014 that keeps us below a 2 deg. C. rise in global average temperature. This meeting moves that our government should propose effective GHG***

emissions targets, along these lines, at the Paris Climate Change Summit.

Wise Response produced a comprehensive 32-page submission (see Attachment 3), contributing to the 15,639 received by closing time, a remarkable achievement given only 26 days from release of the discussion paper.

The MfE analysis of submissions, released mid July, made very interesting reading, the most salient point perhaps being that: *“The vast majority of those who specified a target level recommended New Zealand takes an ambitious target of 40% below 1990 by 2030 or zero carbon by 2050”*.

There was “strong criticism about the consultation process, including the short notice, insufficient advertising and the number of public meetings” as well as “the information provided in the Discussion Document, in particular about the representation of costs, and the need for more information for stakeholders to make an informed submission.” It also noted “a strong level of emotion expressed in the public meetings (15 were actually held) and written submissions. This included passion about climate change and anger about New Zealand’s response to date.” The Minister subsequently announced that the government’s submission to the COP21 Paris Conference on Climate Change next December, was for a provisional target of a 30% reduction of GHG emissions below 2005 levels by 2030, which is equivalent to an 11% reduction below 1990 levels. Groser stated that he needed to ensure the target was achievable, and to avoid imposing unfair costs on any particular sector or group of people. This situation has generated much criticism throughout the country as well as overseas (Climate Action Tracker, Climate Analytics, Ecofys, New Climate Institute and the Potsdam Institute for Climate Impact Research), who say New Zealand is not doing its fair share to fight climate change, and that if other countries were to follow our approach, global warming would exceed 3 or 4 degrees. Wise Response is similarly critical of the New Zealand government’s response to this most important issue of our time, and probably of all time.

I wish to thank many members of Wise Response and several others for their outstanding efforts and contributions during the period of high activity, particularly the contributors to our public meetings in Dunedin on May 18 and in Wellington on June 30. Also to those who contributed to the Society’s submission on the Climate Change Targets, but particularly Nathan Surendran and Dugald MacTavish. I also thank Mark Jackson for continuing to update our website, including our membership which has grown from 4660 at the time of our submission to Parliament to 5036 at the time of our deputation to the Select Committee. My attempt to grow our membership with a framed ad. in the ODT (27/5/15), interestingly, bore no direct response. I also thank Peter Barrett for his assistance with our resolution to the Royal Society Fellow’s Forum and to those who attended and contributed to the ensuing workshop. I also wish to thank Shonagh Kenderdine for her hospitality in Wellington and also for her contribution to the costs associated with our delegation to the Select Committee. I also express my sincere thanks

to our patron, Sir Geoffrey Palmer for his most helpful specialist advice to the Society.

ATTACHMENT 1: Deputation to the Finance and Expenditure Select Committee by the Wise Response Society Inc. July 1, 2015.

- **Dr Alan F. Mark.** FRSNZ, KNZM, Chair Wise Response Soc. Inc., Emeritus Professor, University of Otago. alan.mark@otago.ac.nz
- **Dr Susan Krumdieck.** Professor of Mechanical Engineering, University of Canterbury; Co-Founder, Global Association for Transition Engineering.
- **Dr Janet Stephenson.** Director, Centre for Sustainability, University of Otago.
- **Mr Paul Young.** Co-founder and executive member, Generation Zero.



Appeal to Parliament for a New Zealand Risk Assessment

The Wise Response Petition of 4660 signatures to the House of Representatives, requested:

We the undersigned, request that the House:

(1) urge Government to undertake a National Risk Assessment of: Economic Security, Energy and Climate Security, Business Continuity, Ecological/ Environmental Security and Genuine Well-being,

and

(2) that from that Risk Assessment, develop and implement cross-party policies to avert any confirmed threats to future generations of New Zealanders.

WHAT DO GLOBAL RISKS MEAN FOR NEW ZEALAND'S WELL-BEING?

Wise Response was formed as a result of growing concerns that:

- (a) New Zealand is faced with increasing risks to its social and economic wellbeing, many of which arise from global resource use starting to exceed the earth's carrying capacity, and
- (b) the collective implications of these risks (in the short and longer term) need to be assessed so that appropriate responses can be made to ensure a resilient and sustainable future for New Zealand.

We have summarised the main risks as:

1. Economic security: the risk of a sudden, deepening, or prolonged financial crisis.
2. Energy and climate security: the risk of continuing our heavy dependence on fossil fuels.
3. Business continuity: the risk exposure of all New Zealand business, including farming, to a lower carbon economy.
4. Ecological/environmental security: the risks associated with failing to genuinely protect both land-based and marine ecosystems, and their natural processes.
5. Genuine well-being: the risk of persisting with an economy that is preoccupied with maximising consumption and GDP.

The Wise Response Society was incorporated in 2014 with the purpose "to persuade the New Zealand Parliament, Government and New Zealand society in general to confront and respond effectively to any confirmed threats arising from the question: *As demand for growth exceeds earth's physical limits causing unprecedented risks, what knowledge and changes do we need to secure New Zealand's future wellbeing?*"

The Society has been active in a number of areas where it sees the opportunity to further the above purpose. This has included submissions to territorial authorities and the government, public talks, a climate change initiative with the Royal Society, and the Risk Appeal which is under consideration by the Finance and Expenditure Select Committee.

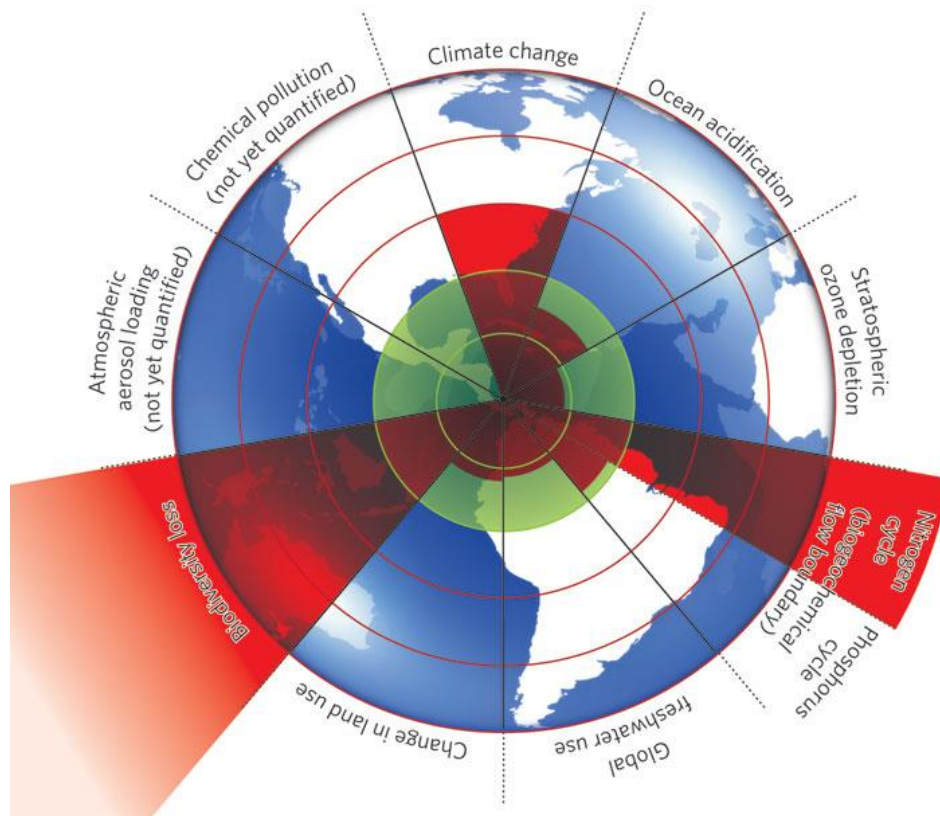
Since the Risk Appeal was first conceived of three years ago, it has gained the support of over 5,000 individuals and 35 organisations, including 100 prominent New Zealanders. See Appendix for a copy of the Appeal wording and the first 100 signatories.

WHY ARE WE ASKING FOR A RISK ASSESSMENT?

Many credible new reports make it clear that the world is under increasing stress from environmental, social and economic trends. Many of these trends are interrelated or have the capacity to create a domino effect.

As a nation whose economy is heavily dependent on global supply chains and imports, it is crucial to understand New Zealand's vulnerability to global shocks and trends such as 1, 2 and 3 above. There are additional risks arising from New Zealand's own unsustainable use of natural resources (4 above), and the implications all of these for social wellbeing (5 above). The bottom line is that there can be no sustainable economy without a functioning and sustainable environment.

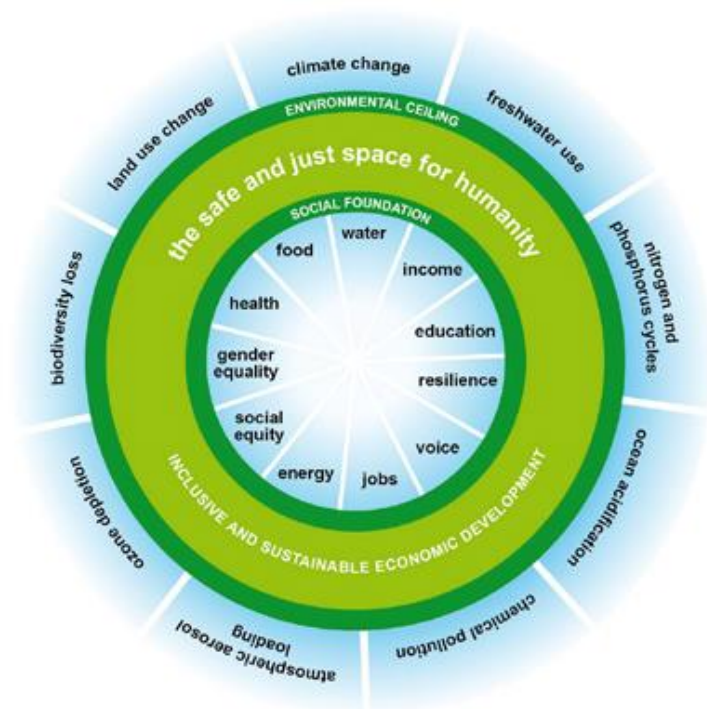
The problem is well illustrated by the diagram below, published in *Nature*, which shows nine 'planetary boundaries' beyond which lie unacceptable environmental degradation and potential tipping points in Earth's systems. The boundaries in three systems (rate of biodiversity loss, climate change and human interference with the nitrogen cycle), have already been exceeded, and most others are seriously compromised.



Source: [Rockstrom et al.](#) (2009) A safe operating space for humanity. *Nature*, 461(7263): 472-475.

This means that the globe is facing unprecedented risks to its established systems of production and consumption. If these risks are not well understood and acted upon, there are serious implications for economic systems and human wellbeing.

The 'doughnut' diagram below, developed by economist Kate Raworth, is a visual reminder that human wellbeing is dependent upon not breaching these environmental limits.



Source: Kate Raworth, Oxfam. <https://www.oxfam.org/en/research/safe-and-just-space-humanity>

It is clear that the risks to our current way of life are escalating. The World Economic Forum publishes an annual 'Global Risk Assessment'. The most recent (2015) report identifies the most likely and most impactful risks facing the globe (see below) and warns that 'past warnings of potential environmental catastrophes have begun to be borne out'.

Importantly, the World Economic Forum considers that nations are 'insufficiently prepared for an increasingly complex risk environment'.

Top 10 risks in terms of Likelihood	Top 10 risks in terms of Impact	Categories
1 Interstate conflict	1 Water crises	Economic
2 Extreme weather events	2 Spread of infectious diseases	Environmental
3 Failure of national governance	3 Weapons of mass destruction	Geopolitical
4 State collapse or crisis	4 Interstate conflict	Societal
5 Unemployment or underemployment	5 Failure of climate-change adaptation	Technological
6 Natural catastrophes	6 Energy price shock	
7 Failure of climate-change adaptation	7 Critical information infrastructure breakdown	
8 Water crises	8 Fiscal crises	
9 Data fraud or theft	9 Unemployment or underemployment	
10 Cyber attacks	10 Biodiversity loss and ecosystem collapse	

Source: WEC Global Risks Report 2015 <http://www.weforum.org/reports/global-risks-report-2015>

RECOMMENDATIONS

We are asking that New Zealand Government, with the support of Parliament, puts in place a process to systematically analyse New Zealand's risk exposure to issues 1-5 outlined in the Appeal, and to other global risks identified by credible international agencies such as the World Economic Forum.

This analysis should use well-established risk assessment procedures to quantify the potential impact of these risks, both individually and collectively, including from climate, energy or financial disruptions. The findings should be made public and used as a basis to develop the responses and changes needed to minimise risk and build resilience. New Zealand would then be in an informed position to develop a response strategy.

Note:

We are aware that some parts of government may be carrying out work on some aspects of the kinds of risks we are highlighting here. However such a fragmented approach will fail to uncover the risks in their totality, their relative significance, and how they inter-relate. Given that the risks are long-term and pan-political, we believe a cross-party commitment is essential to undertaking the risk assessment and following through with effective policy responses.

You will probably be aware that the PM has recently set up a "Strategic Risk and Resilience Panel" (SRRP) under the Government Communications Security Bureau. From the makeup of this committee, its place within New Zealand's intelligence service and their TOR, we conclude that the Panel's primary focus will be on pre-empting near-term risks rather than addressing deep-seated and inter-related longer-term resource related issues. The fact that our approach to the SRRP to share perspectives on national risk and resilience has not so far been accepted suggests that the concerns that we raise are not the focus of this Panel.

THE WORDING OF THE ORIGINAL APPEAL:

Symptoms too serious to ignore: a call to face up to NZ's critical risks.

Appeal to Parliament for a New Zealand Risk Assessment.

As demand for growth exceeds earth's physical limits, causing unprecedented risks, what knowledge and changes do we need to secure New Zealand's future wellbeing?

We live on a biologically complex and exquisite planet, home to 7 billion people and a myriad of other unique life forms. We believe it is our human responsibility to maintain the integrity of life support systems and the natural processes which sustain and renew them.

We believe it is also our responsibility to fervently defend the basic right of humans to live secure and fulfilling lives consistent with the UN Declaration of Human Rights. It follows that our generation must satisfy our present material needs in ways that do not diminish the prospect of their realisation for future generations.

We are deeply concerned about the links between global climate change, fossil fuel extraction and combustion, and the economy. We consider the evidence is now overwhelming (refer Urgency below) for accepting that human-induced climate change (including extreme weather events), and impending oil constraints threaten our ability to meet those environmental and social obligations. There are also numerous other unprecedented trends and threats of the present era which, individually or in combination, could destabilise New Zealand's wellbeing.

So far, New Zealand has failed to truly face up to such unprecedented threats to its collective security. Indeed, some policies exacerbate the situation. There appears to be an unwavering faith that technological fixes will be found in time. Yet with scientists saying critical "thresholds" are upon us, the odds of such solutions being found diminish by the day and the consequences of this faith being ill-founded will, in all probability, be disastrous and irreversible.

Therefore, in the name of all our children and grandchildren we, the undersigned, call on the New Zealand Parliament to face up to this situation now by dispassionately assessing risk levels in the following five areas. Then, if found necessary, and with public input, design coherent, robust cross-party strategies and policies to avert these risks and give future generations the very best chance of security, peace, social justice and opportunity for all.

1. Economic security: the risk of a sudden, deepening, or prolonged financial crisis. Such a crisis could adversely impact upon our society's ability to provide for the essentials, including local access to resources, reliable supply chains, and a resilient infrastructure.

2. Energy and climate security: the risk of continuing our heavy dependence on fossil fuels. Progressively restricting their extraction, importation and use could promote a switch to genuine renewables and encourage smarter use of existing energy and energy systems, while creating better public transportation. Such responses would simultaneously lower greenhouse gas emissions (GHG) emissions.

3. Business continuity: the risk exposure of all New Zealand business, including farming, to a lower carbon economy. To mitigate this risk, all businesses could explore both market and job opportunities in reducing the human ecological footprint, finding substitutes for petroleum-based goods and services, increasing efficiencies and reducing waste in food and resources. This would position New Zealand as a market leader in low-carbon technologies and living arrangements.

4. Ecological/Environmental security: the risks associated with failing to genuinely protect both land-based and marine ecosystems and their natural processes. We believe that such protection is essential for both the maintenance of indigenous biodiversity and ultimately, all human welfare.

5. Genuine well-being: the risk of persisting with a subsidised, debt-based economy, preoccupied with maximising consumption and GDP. An alternative is to measure progress by means of indicators of community sustainability, human well-being, more equitable wealth-sharing and environmental resilience, and to incorporate full-cost pricing of harmful environmental impacts.

A risk assessment is the first step in determining the scale, timeframe and interactivity of the risks faced by New Zealand. It would build on international risk assessments such as the World Economic Forum's Global Risks 2013 report. Such a report for New Zealand should then be used as the basis for engaging the public and businesses of New Zealand in informed discussion as to what choices need to be made to buffer New Zealand from such risks and to work towards genuine well-being.

Thirty years ago, widespread public concern about nuclear proliferation led to cross-party support for New Zealand's anti-nuclear legislation. This was a defining moment in New Zealand's history, and was in response to just one single risk. The Land and Water Forum is another example of where New Zealanders have come together to acknowledge, work through and address the risks of deteriorating water quality. Today New Zealand faces numerous additional risks, which are all the more risky for being largely unacknowledged. We believe Parliament should build on its proud tradition of foresighted collective response to risks, and initiate a risk assessment as the first step in achieving a more secure future.

~ Mo tatou, a mo ka uri a muri ake nei ~

“For us and our children after us.”

First 100 signatories endorsing the above Appeal (total signatories: 4460):

Alan F Mark, Professor Emeritus, Botany, Dunedin; **Jocelyn Harris**, Professor Emerita, English, Dunedin; **Tim Hazledine** Professor, Economics, Auckland; **Brian Turner**, Writer, Central Otago; **Michael Stedman**, Managing Director, NHNZ, Dunedin; **Bob Lloyd**, Associate Professor, Physics, Dunedin; **Wayne Smith**, Former All Black and assistant coach, Hamilton; **Les Cleveland**, Retired Company Director, Dunedin; **Liz Slooten**, Associate Professor, Zoology, Dunedin; **Te Radar**, Opinionist and Social Commentator, Auckland; **Abigail Smith**, Associate Professor, Marine Science, Dunedin; **Fiona Kidman**, Writer, Wellington; **Jean Fleming**, Professor Emerita, Science Communication, Dunedin; **Hank Weiss**, Professor, Social Medicine, Dunedin; **Jim Simpson**, Professor, Chemistry, Dunedin; **John Highton**, Professor, Medicine, Dunedin; **Gilbert van Reenen**, Photographer, Wanaka; **Russell Tregonning**, Surgeon, Wellington; **Glenn Turner**, Retired professional cricketer, Wanaka; **Keith A Hunter**, Pro-vice-chancellor, Sciences, Dunedin; **David Thom**, Retired Professional Engineer, Auckland; **Philip Boyd**, Professor, Marine Chemistry, Dunedin; **Catriona Hurd**, Associate Professor, Botany, Dunedin; **Elizabeth Smither**, Writer, New Plymouth; **Philip Temple**, Author and Historian, Dunedin; **Derek Wilshere**, Civil Engineer, Wellington; **Anne Salmond**, Distinguished Professor, Anthropology, Auckland; **Ian Wedde**, Poet Laureate 2011-2013, Auckland; **Vincent O'Sullivan**, Professor Emeritus, English, Dunedin; **Julian Dean**, Professional Cyclist, Spain/NZ; **David Round**, School of Law, Christchurch; **Doug P. Armstrong**, Professor, Conservation Biology, Palmerston North; **Owen Marshall**, Writer, Timaru; **Morgan Williams**, Former Parliamentary Commissioner, Nelson; **Robin Fordham**, Retired ecologist, Kapiti Coast; **John Jillett**, Retired Marine Scientist, Dunedin; **Mike Joy**, Senior Freshwater Ecologist, Palmerston North; **David Hamilton**, Professor, Biological Sciences, Hamilton; **Jeffrey Papanoa Holman**, Writer, Christchurch; **Roger Mortimer**, Company Director, Auckland; **Terry Hannan**, NZ Land Aid Trust, Australia; **Neville Bennett**, Writer-economist, Christchurch; **Robert Poulin**, Professor, Zoology, Dunedin; **Richard Thomson**, CEO Acquisitions, Councillor, Dunedin; **Jillian Sullivan**, Writer, Queenstown; **Janet Stephenson**, Director, Centre for Sustainability, Dunedin; **John Peet**, Chemical engineer, Christchurch; **Hoani Langsbury**, Maori Advisory Council to Local Government NZ, Dunedin; **Chris Trotter**, Political writer and commentator, Auckland; **Colin Townsend**, Professor, Zoology, Dunedin; **Bruce Burns**, School of Biological Sciences, Auckland; **Margaret Stanley**, Centre for Biodiversity and Biosecurity, Auckland; **Richard Langston**, Freelance journalist, New Zealand; **Mark J. Costello**, Associate Professor, Marine Laboratory, Auckland; **Carol Brown**, Dance Studies, Auckland; **MGary Nicholls**, Professor Emeritus, Medicine, Christchurch; **Chris Laidlaw**, Broadcaster, author and councillor, Wellington; **Emma Neale**, Author and editor/former Burns Fellow, Dunedin; **Colin Gibson**, Professor Emeritus, English, Dunedin; **Gillian Whitehead**, Composer, Dunedin; **Jay Cassells**, Father of 2 sons, Queenstown; **Peter Barrett**, Professor, Geology, Wellington; **Barry Coates**, CEO, Oxfam, Auckland; **Anton Oliver**, Consultant and former All Black, England/Otago; **Lloyd Geering**, Professor Emeritus, Religious Studies, Wellington; **Steve Wratten**, Professor, Ecology, Canterbury; **James Higham**, Professor, Business, Dunedin; **Rob Lawson**, Professor, Marketing, Dunedin; **Jack Woodward**, Professor Emeritus, Electrical Engineering, Auckland; **Jonathan Boston**, Professor, Director, Public Policy, Wellington; **Penny Carnaby**, Professor, Digital Knowledge, Librarian, Canterbury; **Gerry Te Kapa Coates**, Professional engineer, author, company director, Wellington; **Susan Krumdieck**, Professor, Mechanical Engineering, Christchurch; **Niki Harre**, Associate Professor, Psychology, Auckland; **Sophie Jerram**, Curator

and artist, Wellington; **Grahame Sydney**, Artist and author, Central Otago; **Steve Earnshaw**, Surgeon, Councillor, Timaru; **Aaron Packard**, 350.org Aotearoa, Wellington; **Tamsin Cooper**, Fashion Designer & TV Presenter, Dunedin; **Heidi Mardon**, National Director, The EnviroSchools Foundation, Hamilton; **Anne Braun-Elwert**, Director, Alpine Recreation, Lake Tekapo; **Paul Tapsell**, Professor, Maori Pacific and Indigenous Studies, Dunedin; **Evan J Begg**, Professor, Medicine, Christchurch; **Lani Evans**, Convenor, ReGeneration, Wellington; **Dougal Stevenson**, Broadcaster, Dunedin; **Ralph Chapman**, Assoc.Professor, Director, Environmental Studies, Wellington; **Rebecca Priestley**, Science writer and science historian, Wellington; **Lydia Wevers**, Professor, Director, New Zealand Studies, Wellington; **John laRoche**, National Secretary Engineers for Social Responsibility, Auckland; **David Galloway**, Retired Lichenologist (London Museum), Dunedin; **Paul Young**, Coordinator, Generation Zero, Wellington; **Phil Ker**, Chief Executive, Polytechnic, Dunedin; **Fiona Farrell**, Author and Poet, New Zealand; **Ralph E H Sims**, Professor, Energy Research, Palmerston North; **Rick Boven**, former Director of the NZ Institute, Auckland; **Celia Wade-Brown**, Mayor, City Council, Wellington; **Kepa Morgan**, Lecturer Civil and Environmental Engineering, Auckland; **Keri Hulme**, KaiTahu / makyr / writer, Okarito; **Dave Kelly**, Professor, Biological Sciences, Canterbury University; **Neville Peat**, Writer, Dunedin; **Bryan Gould**, Former Vice-chancellor and Chair Research Science and Technology, Hamilton.

Patron: **Sir Geoffrey Palmer**

www.wiseresponse.org.nz

ATTACHMENT 2: 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, tsunamis, 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 million 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:

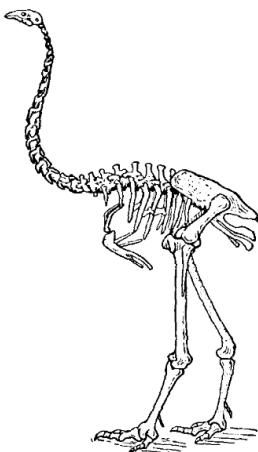
In conclusion; we trust we have convinced the Committee of the urgent need for such a risk assessment and we request that the Committee initiate its own specific enquiry in to the subject matter of the petition, perhaps assisted by the Auditor General and/or the PCE, and/or the Prime Minister's Science 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.



**Submission of
Wise Response Society Incorporated**

**New Zealand's
Climate Change Target and
Intended Nationally Determined
Contributions (INDCs)**



June 3rd, 2015

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June 3rd 2015

Summary of Wise Response submission

1. A low carbon future offers a huge opportunity for NZ if we follow our suggested 'Kea' policy pathway. If we retain the view that we should only be a 'Moa' (the other pathway we describe), then we risk being left behind in what is likely to be a rapid global transition.
2. NZ's mix of renewable energy resource and innovation potential means that it could potentially be a leader in some aspects of mitigation – for example, in reducing agricultural GHG emissions, geothermal energy, an electricity grid running on close to 100% renewable energy, swapping coal for wood-based industrial heat, and an electric vehicle fleet which (unlike other countries which largely rely on coal and gas-generated electricity) makes a huge amount of sense in New Zealand.
3. The shift to a low-carbon future is not simple. It involves on the one hand a change in 'culture' (norms, practices, technologies) amongst households and businesses, as well as changes in the broader structures such as policies and physical infrastructure to support the change. This wider structural change needs to be orchestrated so as to ensure that they are aligned rather than working against each other, and support change at the individual and business level. Many of the changes required to achieve a low-carbon future require investment today in order to achieve change in 5-15 years time (eg mobility infrastructure) so we cannot afford to wait until climate problems worsen. Again, this requires government leadership.
4. New Zealand risks being left behind if it does not adopt a credible position at the Paris talks, and sees that through with effective action domestically. On the other hand, there are huge advantages in being front-footed and actively transitioning to a low-carbon future. We have much to gain (and little to lose) from a positive and strong stance at Paris.
5. Science shows us that globally we may still have a small window of opportunity in which to alter an emissions trajectory to avoid catastrophe. New Zealand must be big enough to recognise that, given the magnitude of the reductions required, the only way we can fulfil our ethical obligations and responsibilities, is with a major shift in New Zealand's policy direction.
6. We are thus currently gambling with the future in a manner resembling a game of "Prisoner's Dilemma" - with a death penalty for losing.
7. Committing to truly ambitious and inspirational INDCs can set our Nation on a new and exciting path which conveniently now makes economic sense as well. This is what "being realistic" requires!
8. We must consider the climate change response in the context of the overall risk environment that we face. Our Society is calling for a comprehensive risk assessment

across the broad spectrum of separate but interrelated risks. There are many other risks which we have to navigate concurrently as a nation, and species. We need to ensure that the climate change response is made in a manner that is cognisant of both the probability of occurrence and the severity of the impacts of the other risks we face. (Refer to the UK Institute and Faculty of Actuaries 2013 report on 'Resource constraints: sharing a finite world. The evidence and scenarios for the future' which is a comprehensive overview of the risks: <http://bit.ly/1Hr4epA>)

Wise Response Society Incorporated makes the following key recommendations for its 'Kea' pathway:

9. The Society calls on the New Zealand Government, **"Mo tatou, a mo ka uri a muri ake nei"** ("For us and our children after us") to **immediately commit to action of a scale commensurate with the risk that unabated climate change poses.**
10. That the government submit and fully commit to an INDC which assumes a path of global cooperation, that will see all countries including New Zealand play its full part in keep temperature rise under 1.5 deg C. The pathway that science is telling us leads to that target involves zero carbon emissions globally by 2045-2060.
11. Given the the level of risk posed by climate change and its irreversibility, NZs INDC must align with:
 - a. the Precautionary Principle which requires that:
 - i. GHG emissions be reduced to the extent, and at a pace, necessary to protect against the threats of climate change that can still be avoided; and
 - ii. the level of reductions of GHG emissions required to achieve this, must be based on any credible and realistic worst-case scenario generally now accepted by mainstream climate change experts.
 - b. The measures required by the Precautionary Principle should be adopted without regard to the cost, unless that cost is completely disproportionate to the reduction in emissions.
12. The Government sets up a permanent, standing consultative body to interact with the community on climate change based on the principle of continuous dialogue rather than a one-off collection of submissions. This problem is going to require concerted effort, sustained across many generations, and it needs proper resourcing.
13. That all submissions to this consultation and the summary of the submissions be made publically accessible prior to the Government confirming the targets and a report be prepared giving reasons for the Government's decision.

Contents

Summary of Wise Response submission

Wise Response Society Incorporated makes the following key recommendations for its 'Kea' pathway:

Introduction

Climate Consultation commentary and response

Identifying a Wise Response to climate change

Policy Response Strategy 'Moa'

Policy Response Strategy 'Kea'

Specific Policy shifts required for 'Kea'

Wise Response and Sustainable Dunedin City public meeting 18 May 2015

Resolution for action.

Our target recommendation

Appendix 1 : Background info for Wise Response submission.

Appendix 2 : Letter to Royal Society

Introduction

14. Wise Response is a broad coalition of academics, artists, engineers, lawyers, scientists, sports people etc; who are calling on New Zealand's Parliament to comprehensively assess imminent risks to New Zealand and to draw up plans to deal with them.
15. Essentially the Wise Response appeal seeks to have addressed the question: "As demand for growth exceeds earth's physical limits, causing unprecedented risks, what knowledge and changes do we need to secure New Zealand's future wellbeing? Refer to our website for the full appeal text: <http://bit.ly/wiseresponse>
16. Climate change is a symptom of surpassing a 'Planetary Boundary' - one of several global limits identified by modern science [<http://bit.ly/1G9BEu9>], specifically the atmosphere being unable to assimilate cumulative GHG emissions and remain stable.
17. Wise Response members and Royal Society Fellows, Sir Alan Mark, and Prof Peter Barrett submitted the following resolution to the Fellows AGM Forum of the Royal Society NZ in late 2014, which was unanimously accepted:
"to request that the RSNZ Academy Council convene a group of experts to review and assess the risks associated with recent and projected trends in greenhouse gas emissions, the likely consequences for New Zealand in future decades and centuries, and consider options for both mitigation and adaptation, taking into account environmental, social and economic considerations."

Refer to Appendix 2 for information.

Climate Consultation commentary and response

18. For a discussion of such critical importance to mankind's collective future, we wish to make it clear that both the consultation document and the timescales allowed for the consultation period have been wholly inadequate, and we are struggling to respond adequately and concisely.
19. The consultation appears to be ignoring previous advice regarding the nature and scale of the challenges and dangers of insufficient action, from the government's own advisors:
 - a. The 2014 'Briefing to Incoming Ministers' from MfE states that: **"We need to develop a stable and enduring policy setting that enables New Zealand to become a successful 'low-carbon society', which is resilient to climate change impacts and widely supported by society."**
<http://www.mfe.govt.nz/publications/about-us/briefing-incoming-minister-environment-and-minister-climate-change-issues-2014>
 - b. Sir Peter Gluckman's 2014 report on climate change states that: **"...Ominously, the extent of human-induced global warming may be magnified by feedback effects that release even more greenhouse gases into the atmosphere as the world warms (carbon dioxide is less soluble in warmer sea water, and more methane may be released as the Arctic permafrost thaws) and cause less of the sun's heat to be reflected by the melting polar ice caps.**

...There is a remote possibility that if we did little or nothing then the temperature would not rise to unacceptable levels. But we cannot gamble the future of the whole planet on the low probability of that occurring [refer to the 'Precautionary Principle' in Wise Response recommendations]."
<http://www.pmcsa.org.nz/wp-content/uploads/Climate-Change-website-printable-version.pdf>
20. The discussion document outlines some of the costs of mitigation but fails to discuss the **hugely greater costs of inaction**. The questions asked in the consultation document are by and large footling, unctuous and misguided. But for the sake of completeness we provide short responses to the questions in the table below before moving on to what we consider are the real issues regarding climate change targets:

Q1.

(a) Do you agree with the above objectives for our contribution? At face value perhaps but there are consequential questions too. "Fair" to whom and by what measure? Have the potential costs and impacts been objectively scoped and assessed? Where is the policy that shows Government recognises or commits meaningfully to the need for such a transition?

(b) What is most important to you? A future for our children that is not only survivable but has some level of fulfillment.

Q2.

What do you think the nature of New Zealand's emissions and economy means for the level of target that we set? We set it so that on the balance of probabilities life on this planet has some hope of continuing beyond 2100. 4 deg C plus change is 'catastrophic'.

Q3.

What level of cost is appropriate for New Zealand to reduce its greenhouse gas emissions? For example, what would be a reasonable reduction in annual household consumption? What will the cost be if we do not reduce our GHGs? The short answer is an uninhabitable planet where there will not be any households.

Q4 .

Of these opportunities which do you think are the most likely to occur, or be most important for New Zealand? You have not identified the real opportunities which lie in transition off a fossil fuel based economy, comprehensively identified in the 'New Climate Economy' report <http://newclimateeconomy.report/>, nor the true cost of inaction.

Q5.

How should New Zealand take into account the future uncertainties of technologies and costs when setting its target? Listen to mainstream science, backcast from the targets that must be hit, from that determine what annual emissions reductions are required and alter government policy accordingly.

Regarding uncertainties around such technologies as CCS, the economics need to be investigated on a full cost, net life cycle energy basis (including replacement <http://bit.ly/TOUHnN>). We must move forwards in a global system of interdependence, with significant risks based on the reality of biophysical limits ('Planetary Boundaries', peak conventional oil, etc). These will affect our economic, and energy systems choices, and need more investigation at a 'meta' level, to guide a response for our nation.

Identifying a Wise Response to climate change

21. Wise Response asserts that the precondition to accepting appropriate INDCs is for Governments to acknowledge the absurdity of pursuing a policy of maximum economic returns without giving sufficient credence to biophysical limits and adapting policy accordingly.
22. Thus we see two broad policy response strategies available for New Zealand:
 - a. **'Moa' - 'Business As Usual' with tweaking leading to probable extinction:** New Zealand can view the requirement to reduce emissions as a burden, drag our heels for as long as possible and continue to back the best short-term economic activity without concern about how emission-intensive they are or their true cost.
 - b. **'Kea' - an smart, aggressive model for a new economic direction:** Make a serious commitment in policy and follow up with action to fully explore the economic, social and environmental opportunities that the transition off fossil fuels offers.

Policy Response Strategy 'Moa'

23. Based on the consultation document, **the status quo policy seems fixated on the expectation that there will be adverse effects on the national economy, wages and well-being with a more ambitious emissions target. What will be the costs and sense of well-being impacts be if global targets are not met?**
24. The costs of climate change, if left unchecked, will make it increasingly difficult to be able to afford adaptation, let alone mitigation, because it will depress economic activity. **And the longer it is left before acting, the more expensive it will be to change our systems to cope.**
25. This was a point made clearly by Nicholas Stern in his 2006 landmark report *The Economics of Climate Change*. An example is the **costs of drought to New Zealand** (predicted to become more frequent with climate change) – the 2007-9 drought reduced direct and off-farm outputs by \$3.6 billion. The drought in 2012-13 reduced New Zealand's GDP by 0.3 to 0.6%.
26. Once we are on an economic back foot from the impacts of climate change, it will become **increasingly difficult over time** to have the financial capacity to adapt systems to climate impacts, let alone reduce emissions.
27. There is minimal talk of the substantial **health benefits** of strong mitigation efforts (refer to our appendices for more on health impacts).
28. We cannot continue to rely on **forestry sinks** here or overseas (with purchase of expensive carbon credits) that build emissions overshoot that can not be sustained or relied on. Moreover, the rest of the world is not going to be fooled by creative

accounting that makes us look as if we are pulling our weight when we are only self-serving.

29. Inaction also risks ruination of **New Zealand's 100% Clean Green brand**. The Climate Change Performance Index (CCPI) is a highly-reputable tool designed to enhance transparency in international climate politics. It evaluates and compares, using standardised criteria, the climate protection performance of countries responsible for more than 90% of global carbon emissions.
30. In the 2014 CCPI report, **New Zealand was ranked 42nd (and declining)** among 58 countries overall, and was also ranked among the bottom five countries in respect of their national climate change policies. New Zealand's poor performance, both in terms of increasing carbon emissions and of CCPI rankings, **reflects relative inaction since 2008** over the threat of human-induced climate change. This poor performance seriously compromises our reputation and potential markets.
31. The 'all of the above' energy policies currently being pursued acknowledge nothing of the huge **subsidies for fossil fuels** and exploitation there of - the externalised costs that are NOT charged to the polluter are actually an effective subsidy. The boomer generation have already enjoyed the energy from the Maui natural gas resource, and we must accept how we used it and learn from that, and pass that wisdom on. If there is another large oil and gas reservoir in the oceans off New Zealand, then it belongs to our grandchildren. It will be up to them to decide whether to use it or to retain it as an option for their grandchildren.
32. The signs are now clear that the **world is in a transition to a low carbon future** because the previous resistance to action, argued on economic grounds, will reverse to favour action on economic grounds. If New Zealand does not commit to the course of drastic emissions reduction action recommended in the various learned submissions from the likes of ourselves, Generation Zero, Engineers for Social Responsibility, and many other NGO's whose various public submissions (in the last few weeks) support our basic assertions, we will very soon find we have been left far behind.
33. Continued inaction is ill advised on the basis set out by Infometrics Ltd in their modelling report "A General Equilibrium Analysis of Options for New Zealand's post-2020 Climate Change Contribution for Ministry for the Environment – 13 April 2015" which states: "**Uncertainty should not be a reason for doing nothing. Instead policy should be cognisant of the risks (favourable and unfavourable) and seek to manage those risks.**" [<http://bit.ly/1HrIGKn>]
34. We note also the recently established set of legal principles collectively known as the 'Oslo Principles' [<http://bit.ly/1Aky7rK>] is forming the basis for citizens to challenge inadequate government action on climate change:

"These Principles, seeking to overcome the generally abstract nature of previous efforts to define the scope of legal obligations relevant to climate change, express both:

- a. *the current obligations that all States and enterprises have to defend and protect the Earth's climate and, thus, its biosphere; and*

b. *basic means of meeting those obligations.*

Fulfilling these obligations is necessary and urgent if we are to avoid an unprecedented catastrophe. The obligations set out here derive from broad fundamental principles and a wide range of well-established law.

Policy Response Strategy ‘Kea’

35. **We must stop comparing the nature of New Zealand’s emissions and economy with other countries and instead focus on what must be achieved collectively and what is "fair" in that context.** Move away from the myth that our expensive agricultural produce is going to feed the world and that the current enterprise is not negotiable.
36. The consultation document **does not consider the ethical dimension.** For example the value that New Zealand society puts on honour, valour, acting bravely and with dignity to protect and serve our home and others around the world who are being mistreated and exploited. We cannot let this be about the dollar value alone. Extinction and loss of the land, livelihood and heritage of our Pacific Islands (including ultimately large sections of our own) is not acceptable. Ultimate failure of the ecosystems and their many services we rely on for sustenance is not acceptable. There is not an acceptable price for failing to address the existential threat climate change poses to all species here on earth.
37. There are many more **potential jobs and wealth creation** in New Zealand’s domestic enterprises aimed at using less fossil fuels than there are generated by extracting more oil and gas exploration and production, with a much higher percentage of the revenue being retained in our economy. The government could unlock ‘Kiwi Ingenuity’ by sending a clear signal that New Zealand is a country looking beyond last century to the future and delivering new ideas and solutions to the world.
38. It is widely accepted that the greatest financial **opportunity exists for early adopters.** This path would represent true leadership on the international stage. New Zealand will attract more international talent and more investment in creativity and 21st century enterprises than it will in opening up to foreign extractive exploitation of the remaining fragments of New Zealand’s natural ecosystems.
39. We can **stop promoting emission-intensive activities** and hydrocarbon exploration, and make a serious commitment to fully explore the opportunities that transition off carbon offers. As UN climate chief Christiana Figueres says, climate change offers a “huge business opportunity” that ought to be embraced by both sides of politics. “So it’s not necessarily a typical left-wing agenda, it actually has opportunities for everyone.” [<http://bit.ly/1KJA04T>]
40. This view is supported by the “New Climate Economy” (<http://newclimateeconomy.report/>) report which uses neo-classical economic thinking

as the basis to demonstrate the **vast potential** that is there for those who choose to recognise it:

*“The next 15 years will be critical as the global economy undergoes a deep structural transformation that will determine the future of the world’s climate system. It will not be ‘business as usual’. The global economy will grow by more than half, a billion more people will come to live in cities, and rapid technological advance will continue to change businesses and lives. **Low carbon and climate resilient growth is possible. The capital for the necessary investments is available, and the potential for innovation is vast. What is needed is strong political leadership and credible, consistent policies. But without urgent action, warming could exceed 4 deg C by the end of the century, with extreme and potentially irreversible impacts. This report lays out how countries across the world can reduce the risks of climate change and achieve high-quality, resilient, and inclusive growth.**”*

41. There is a significant overlap between **actions required for adaptation and actions required for mitigation**. These are often discussed as binary opposites – with a strong voice in New Zealand suggesting that we should only focus on adaptation. But rather than seeing them as alternate actions we need to recognise that they are complementary and often involve the same or similar responses.
42. **For example, both involve the development of systems (farming, transport, etc) that are resilient, adaptable to change, and not highly dependent on resources that will significantly change in availability and cost over the period under consideration.** This option has the supposed benefit of no short term economic detriment (ignoring reputational risk), however long term, the projected detrimental effects of inaction are mounting with every year of weak policy and inaction.

Specific Policy shifts required for ‘Kea’

43. Wise Response considers that the only rational strategy is ‘Kea’ and offers the following specific ideas canvassed from our members to facilitate a move in that direction:
 - a. Rely primarily on policy and regulation to ensure targets are met rather than market instruments and technological innovation. If one of these works it will be a break that we need anyway. We agree with LSE’s Lord Nicolas Stern who has called the current situation with respect to climate change “the greatest market failure in human history”.
 - b. The scope of INDCs must cover equally all sectors relevant to New Zealand’s greenhouse gas emissions and that anticipate lifestyle change by the general public in addition to industry.
 - c. Integrate energy, transport, environmental, agricultural and forestry policies, including scope, assumptions, timeframes, targets, implementation milestones and more investment in research on renewables than in research on exploration of carbon-based fossil fuels.

- d. To the extent technically possible based on current evidence, anticipate decoupling any unavoidable economic growth from greenhouse gas emissions. CCS, for example, fails this test.
- e. Calculations for required contributions must be based on the standard methods and procedures of the Revised 1996 Intergovernmental Panel on Climate Change (IPCC) Guidelines for National Greenhouse Gas Inventories (IPCC 1997a, 1997b, 1997c) and IPCC Good Practice Guidance (IPCC 2000, IPCC 2003), as adopted by the UNFCCC.
- f. Contributions to be presented in a manner that genuinely facilitates clarity transparency and understanding.
- g. Current emphasis only on electric and shift to biofuel, the latter aspirational should be significantly strengthened to specific action recommendations. Refer to Generation Zero's 'Challenge to Our Leaders' report for more detail: www.generationzero.org/report_a_challenge_to_our_leaders
- h. No mention of curbing the huge proposed costs of motorway construction - billions per year under RONS compared with about \$10 million on the agricultural gas research investment.
- i. Electric vehicles touched on but no mention of the importance of a shift to electric rail, public transport and other ways of curbing fossil fuel burning.

Wise Response and Sustainable Dunedin City public meeting 18 May 2015

- 44. In response to the consultation document and our prior correspondence Wise Response Society Incorporated organised the above event to provide the community the opportunity to exchange views on appropriate INDCs. The speakers were from a wide range of interest groups and known for their knowledge in the subject area.
- 45. The papers that they provided are included in the Appendix 1 below. We would draw your attention particularly to Prof Bob Lloyd's paper which was highly influential in confirming for the those present the need for very urgent and ambitious action.

Resolution for action.

- 46. The meeting was attended by approximately 200 persons. They passed the following resolution.

"That this public meeting strongly urges the New Zealand government to endorse both the moral imperative and the economic, social and environmental opportunities of a rapid transition to a low-carbon economy and society. To

this end, it should adhere to the mitigation option proposed by the IPCC Mitigation Report 2014 that keeps us below a 2 deg. C. rise in global average temperature. This meeting moves that our government should propose effective GHG emissions targets, along these lines, at the Paris Climate Change Summit.

Moved Alan Mark; seconded Stuart Matheson: Carried unanimously.

Our target recommendation

47. We have updated the 2 deg. C. target in our summary to 1.5 deg. C. in line with the latest (post AR5) science on the matter. Ralph Chapman (Director, Graduate Prog In Environmental Studies - School of Geography, Environment and Earth Sciences, VUW), Martin Manning (Professor, School of Geography, Environment and Earth Sciences, VUW) and others at VUW have similar concerns, especially following the just published “Rogelj et al” paper <http://dx.doi.org/10.1038/nclimate2572> which states:
- a. *“Many impacts projected for a global warming level of 2 °C relative to pre-industrial levels may exceed the coping capacities of particularly vulnerable countries. Therefore, many countries advocate limiting warming to below 1.5 °C. Here we analyse integrated energy–economy–environment scenarios that keep warming to below 1.5 °C by 2100. We find that in such scenarios, energy-system transformations are in many aspects similar to 2 °C-consistent scenarios, but show a faster scale-up of mitigation action in most sectors, leading to observable differences in emission reductions in 2030 and 2050. The move from a 2 °C- to a 1.5 °C-consistent world will be achieved mainly through additional reductions of CO₂. This implies an earlier transition to net zero carbon emissions worldwide, to be achieved between 2045 and 2060. Energy efficiency and stringent early reductions are key to retain a possibility for limiting warming to below 1.5 °C by 2100. The window for achieving this goal is small and rapidly closing.”*
48. Professor Chapman notes that the key messages are that:
- a. ***“1.5C is no longer feasible - it requires more than heroic assumptions about the rate of emission and energy reductions, as well as one helluva lot of negative emissions post-2050 (e.g. BECCS);”***
 - b. ***“If we are to be 'likely' (2/3 chance) to stay under the 2C guardrail, then we need to demolish any notion of zero carbon by 2100. The timeframe is around 2060, NOT 2100. This is a critical idea we have to get embedded in the public debate, as the notion of having till 2100 has been bandied about, and always seemed way too relaxed.”***

49. We submit these recommendations in all sincerity and trust that they will be treated seriously and responsibly, particularly in the name of future generations of humans and the many diverse ecosystems on which they, as we, depend for their existence, welfare and quality of life.

Yours sincerely,

Alan Mark ΦBK (Duke), Hon DSc (Otago), FRSNZ, KNZM

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Attachment 4: Wise Response Society Annual Report

To: Regional Policy Statement Review Team,
Otago Regional Council.

From: Wise Response Society Inc

Contact: Sir Alan Mark,
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Helensburgh,
Dunedin. 9010.

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- We wish to be heard in support of our submission:
- If others make a similar submission, we will consider presenting jointly with them at the hearing:
- Trade competitors declaration: Wise Response will not gain any trade advantage from this submission

1 BACKGROUND TO WISE RESPONSE

Wise Response was launched in Dunedin in 2012 with the support of 100 notable New Zealanders. Wise Response Society encourages all levels of government as well as all New Zealand citizens to ensure that our way of life and priorities are not leading us, either wittingly or unwittingly, to deny our children the opportunity of a viable and fulfilling future. Specifically the Society seeks to have addressed systematically this key question:

"As demand for growth exceeds earth's physical limits causing unprecedented risks, what knowledge and changes do we need to secure New Zealand's future wellbeing?"

To this end it is calling on the New Zealand Parliament to undertake a formal assessment of the risks arising from the combination of the threats outlined below then to develop and implement cross-party policies to avert any confirmed threats to future generations of New Zealanders.

Risks to New Zealand

The five most significant risks to New Zealand, in our view, are:

- 1. Financial security:** the risk of a sudden, deepening, or prolonged global financial crisis.
- 2. Energy and climate security:** the risk of continuing our heavy dependence on fossil fuels.
- 3. Business continuity** the risk exposure of all New Zealand business, including farming, to a lower carbon economy.
- 4. Ecological/Environmental security:** the risks associated with failing to genuinely protect both land-based and marine ecosystems and their natural processes.
- 5. Genuine well-being:** the risk of persisting with a subsidised, debt-based economy, preoccupied with maximising consumption and GDP and increasing inequality.

Evidence-based science on several fronts, shows that, due in large part to encountering limits, New Zealand in general and therefore Otago are environmentally, socially and economically vulnerable. Therefore, until we address the implications of

Attachment 4: Wise Response Society Annual Report

limits, planning is unlikely to be realistic; it may even undermine critical needs over the next decade or two.

We see that TLAs can have an important role in responding to these risks rationally through the regional planning process. The skills and technology exist to make the necessary changes. What is lacking and what we hope the Risk Appeal will facilitate is the necessary awareness and political will to create the critical mass required.

Following the Precautionary Principle, Wise Response asks the Otago Regional Council to ensure its revised Regional Policy Statement (RPS) is based on an objective, uncompromising assessment of the relevant science and associated risks. The risks identified need to be prioritised and logical principles and policies developed dispassionately from the consequent outcomes.

From these analyses, we anticipate that the RPS will need to place greater weight on genuinely securing the longer term future and curtailing the excesses of a free market in the interests of our collective good. Plan wording will need to be firm, explicit and unambiguous to make a real difference and minimise legal challenge under implementation.

2 THIS SUBMISSION RELATES TO:

It might be anticipated from the objective of the Society and the scope of the risks we see that our interest in this Plan review will cover a wide range of subjects. Given the large number of changes we wished to propose, it seemed most efficient, all round, simply to make them directly on the document.

This has been done and brief reasons provided in the margins for the more significant changes. Within the framework of the plan we generally seek amendments which might better address the five risk areas set out in the table above. That, however, should not be interpreted as the Society's support for the framework as it stands.

The Society's general areas of concern and the decisions that would be preferred are set out in Section 2 below. Some of them suggest that structural change may be the most efficient and effective way to achieve the emphasis required.

3 THE BROAD PRINCIPLES THAT WE WISH TO SEE MORE CLEARLY REFLECTED IN THE PLAN:

1. Establish a firm platform for the plan of presuppositions and issue identification against which progress can be gauged

Please set out the Council's presuppositions regarding the status and trends in the environment to provide a clear platform for identifying issues, the proposed Plan provisions and the objectives, policies and limits it sets. Presuppositions need to be based on rigorous research and statistics, and the established principles of physics, ecology and environmental management. Some assumptions are already evident from

Attachment 4: Wise Response Society Annual Report

statements in the Plan but need to be brought together in a single section near the beginning. Subjects to be addressed might include

- Biodiversity
- Freshwater
- Coastal environment
- Land and soil
- Energy and carbon emissions
- Climate change and weather
- Stability of the global economy and implications
- Relationship between economic, social and environmental elements
- Employment
- Economic activity
- Social needs

Issues may then become more evident. It should be clear how the provisions in the new RPS are anticipated to reverse negative trends, and result in different environmental outcomes. At present, that is unclear.

2. Give the Plan a global as well as the national context

The plan can not directly address the global context but it can take it into account to give "sustainable management" a fully integrated and defensible bio-physical foundation.

In this respect the primary underlying issue for the Plan is one of carbon and thus energy constraint. Fossil fuel is very convenient and to a large extent our society is built around it, but it is also finite and there are growing signs that it will not be so freely and cheaply available in the future. Hence, Plan provisions will need to anticipate and facilitate preparations in the community for this eventuality.

Climate change too is well advanced. Two degrees average global temperature rise on pre-industrial levels has been widely accepted as being a maximum safe limit for the planet. Reliable estimates show that we will be committed to this with the emission of about 900Gt of CO₂ emission and on current trends this will occur sometime between 2030 - 2040. The IPCC has indicated that the prospects of life as we know it continuing at temperatures above this level are small. Indeed, there are already serious concerns that 2 degrees is too large.

We recognise that current legislation makes it difficult for local government to address climate change directly. However, the consequences of the ETS failing and not meeting targets are so dire that we consider the Plan needs to find indirect ways to enable and require everyone in the region to contribute to emissions reduction.

The Society feels strongly that we are already "fiddling while Rome burns" with respect to climate change, and the stakes are so high, we can not take the risk of relying on international negotiations. We must rein in our collective preoccupation with the accumulation of material wealth above other measures of progress and quality of life.

Attachment 4: Wise Response Society Annual Report

3. Requiring the setting of limits to resource use and discharges that will be ecologically sustainable into the future

The national policy statement on freshwater has been instrumental in moving from a consenting environment when there is always room to take a little more, to one that seeks to set an absolute limit. This concept needs to be extended to other resources and include mechanisms that will ensure those limits will not be breached (eg. GHGs, nutrients, gravel extraction, fish bag limits).

This implies effective monitoring and accounting.

And in a closed system, material growth and limits are on a collision course. It is also clear that our footprint is already above what is sustainable or fair in global terms. We therefore consider the concepts of **resilience** and **development** are more appropriate terms for the Plan than increasing "prosperity" and "growth".

4. The focus of the plan needs to be firmly on building region-wide and integrated resilience

We interpret the RMA as giving Regional Authorities the primary responsibility of controlling the adverse effects on the environment of economic activity in the public interest. Promoting economic activity creates a conflict of interest and undermines trust in Council's activities and motives. It is also risky as the value of particular economic activities can change.

Thus, the Plan (and Council through the Plan), we feel, must shift the focus of activity away from promoting economic development and financial return to sustainably managing of the natural and physical resources, as required under S5, RMA.

To be fully effective this will require integration across land, freshwater, estuarine and marine interfaces as a single ecosystem complex to be optimised and sustainable

5. Securing the environment and biodiversity before considering economic development needs must be reflected in the wording and ranking of policies

If we accept that a healthy "land base" is ultimately an essential platform for a healthy society and economy then it is important that the plan reflects that; i.e. that the plan is first and foremost about securing the environment (i.e. retaining adequately functioning ecosystems) against adverse impacts of human activity. In making development subject to safeguarding the environment the RMA accepts that principle in Section 5.

In this respect we consider the flavour of many of the policies in the Plan need amending to be less anthropocentric - the idea that ultimately we are not in control and the values that we place on ecosystems etc. must be values that are important in ecological terms.

We also consider it is important to acknowledge that we have already lost a lot and so are dealing with the remaining elements of significant landscape, wetland, pristine

Attachment 4: Wise Response Society Annual Report

water, etc. Shifting baselines over the years can mean we lose sight of the seriousness of our loss of healthy functioning ecological systems.

On-going habitat loss as a result of increasing land intensification and conversion to forestry, and degradation through grazing, pest and weed invasion, are the principle threats to indigenous species, habitats and ecosystems. Regional and District Councils have a responsibility to maintain indigenous biodiversity and to provide for the protection of significant indigenous vegetation and significant habitats of indigenous fauna, and also provide for the preservation of the natural character of the coastal environment, wetlands, rivers, lakes and their margins.

Methods for inclusion in the plan include:

- a) Manage indigenous vegetation clearance using case by case assessments to determine whether an area of indigenous vegetation or habitat is significant and thus warrants protection
- b) Include appropriate regulatory methods that control the clearance or modification of indigenous vegetation and habitats of indigenous fauna.
- c) Require ecological assessments to accompany a resource management proposal or plan for an activity or development that may affect areas of indigenous vegetation and habitats of indigenous fauna

6. Promoting agro-ecological resilience at scale as a way to address a range of issues and needs

We think that many of the land and water management issues that are degrading our environment are occurring because Council's policies are too *laissez faire*. We would like to see a much more proactive approach to defining sustainable land use activities by zone, taking into account ecosystem services and amenity as well. The maximum nitrogen leaching zones proposed by Council in the revised water quality plan are an example.

In this context we consider that the evolving concept of "integrated landscape management" (agroecology), which seeks multi-functional synergies at scale to achieve a diverse set of landscape objectives, needs to be adopted as a practical method of shoring up both rural and urban resilience, and also identifying activities appropriate for different zones.

And if the landscape is regarded as the main unit of activity, then the main uses that make up the landscape can be integrated to enhance the productive potential of the overall system rather than individual properties. This approach would be a radical shift from current ORC practice which is by and large not to regulate land use.

But there are massive potential gains to individual property owners and the community at large from planning at such a level. Simply focusing on ways to enhance catchment water (in soils, aquifers, wetlands, rivers, etc) and carbon (in soils, vegetation cover, wetlands, etc) will automatically generate other ecosystem services for the catchment and coastline, potentially including improved:

- drought-resistance
- regulation and distribution of water in time
- natural water quality due to improved infiltration

Attachment 4: Wise Response Society Annual Report

- biodiversity and more diversity in farming practices
- control over erosion and siltation
- synergy between ecology, agriculture and agriforestry
- GHG sequestration
- adaptation for climate change
- independence from fossil fuel derivatives (e.g. fertilizers)
- waste management

7. Achieve sustainable resource management throughout Otago, not just where resources are identified as being ‘significant’ or ‘highly valued’.

The concept that we should ring fence and protect specific parts of our region, while ‘consumptive use of resources’ occurs elsewhere, is a theme in many parts of the document.

Fragmented habitats are not sustainable, and ecosystem components cannot be managed in isolation. If our region is to have a strong future, sustainable management of resources and protection of ecosystems must be a cornerstone of practice right across the region. And of course, sustainable resource management is also the key tenant of the Resource Management Act.

8. Where there is scientific uncertainty, precaution must prevail

We applaud the inclusion of a **precautionary approach** in the Plan. But we wish to see more specific reference to this principle rather than just an approach. Accordingly, we propose the following (or a similar) definition be included.

"For the purposes of this plan the precautionary principle and approach means that if an action or policy has a suspected risk of causing harm to the public or to the environment, in the absence of extensive scientific consensus that the action or policy is not harmful, the burden of proof that it is not harmful falls on those taking an action."

The principle implies that there is social responsibility to protect the public from exposure to harm, when scientific investigation has found a plausible risk. These protections can be relaxed only if further scientific findings emerge that provide sound evidence that no harm will result.

9. Wording in the Plan needs to be clear and uncompromising were it addresses primary issues

Social science tells us that humans are not good at responding to risks that are insidious and inconvenient to address. Known risks indicate that we have reached a point where rapid behavioural change is the only option if we are to leave our children and theirs, many options. Therefore wording in the Plan needs to be clear and uncompromising were it addresses primary issues, and the Plan needs to place obligations on Council to achieve certain outcomes. Where the evidence is clear or the stakes are high the Plan needs to make it clear to the community that, at this stage

Attachment 4: Wise Response Society Annual Report

of the game, those who do not adapt to the new imperatives put themselves and potentially others at risk.

Accordingly, suggested wording changes are often simply to give the Plan more teeth (e.g. preferring mitigation to adaptation and prohibit rather than avoid, promoting rather than encouraging)

Complement regulation with incentives and compensation for environmental services.

10. Ensure that key policies and regulations are backed up with monitoring requirements that include sustainability indicators.

Put in place emission-reduction plans or carbon budgets, and for emissions impact assessment for new infrastructure

Life cycle assessment needs to be part of evaluation of the resource use and environmental efficiency of land use and other systems to account for the whole supply chain. Use of the method for the likes of carbon, nutrient and water "foot-printing" will enable evaluation of the potential impacts of products on multiple resource use and environmental indicators for system optimisation.

This may be done by building in the social cost of carbon (SCC) into the assessment of all Council investments (and requiring this in cost-benefit analyses of other projects). See [The US EPA produces updated assessments of the SCC](#) for further information.

11. ORC have to be able to be held to account and have targets or reviews

There are many good provisions in the existing RPS that would have us in a much better place had they been implemented during the life of that plan. Thus this new plan needs to set targets for the ORC so that they can be audited at regular intervals using effective indicators.

Council also need to be required to actively inform the general public of the need for any transformational policy, and explain how citizens can best aid the process of sustainable management of our natural and physical resources, at the same time as improving their personal security and contentment.

12. Plan structure

Integration and strong emphasis on minimising risk and building resilience in the Plan is an advancement. But it seems there may be scope to reduce the number of provisions by altering and simplifying the structure of the Plan. This would make it a more useful and accessible document. The National Standard for Freshwater is a relatively simply document but very effective.

4 SPECIFIC CHANGES REQUESTED FOR THE PLAN

Accompanying this submission is an annotated version of the draft Plan.

5 OTHER MATTERS