Submission on the Climate Change Commission's first advice to the Government: "Climate action for Aotearoa"

27 March 2021

OraTaiao
NZ Climate & Health Council

Foreword

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Submission on "Climate action for Aotearoa" – the Climate Change Commission advice to government

To the Climate Change Commission,

Thank you for the chance to contribute to the Climate Change Commission's first package of advice to Government. We acknowledge the Commission's work and consultation in preparing this advice. Please find our submission below.

Our submission draws on an extensive evidence base around climate change and health, and has been prepared by a team of health professional volunteers representing OraTaiao: New Zealand Climate & Health Council.

While we support the intent of the Commission's draft advice and some recommendations, we cannot support the majority of recommendations as these do not take into account the health and health equity gains that can be made by emission reducing policies, and the advice does not account for the harm climate change will cause to health and healthy equity.

Ngā mihi,

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About OraTaiao

OraTaiao: The New Zealand Climate and Health Council is an organisation calling for urgent, fair, and Tiriti-based climate action in Aotearoa; we recognise the important co-benefits to health, well-being and fairness from strong and well-designed mitigative policies.

We honour Māori aspirations, are committed to the principles of te Tiriti o Waitangi, and strive to reduce inequities between Māori and other New Zealanders. We are guided in our practice by the concepts of kaitiakitanga (guardianship), kotahitanga (unity), manaakitanga (caring), and whakatipuranga (future generations).

OraTaiao has grown over a decade to more than 700 health professionals concerned with:

- The negative impacts of climate change on health, well-being, and fairness;
- The gains to health, well-being, and fairness that are possible through strong, health-centred climate action;
- Highlighting the impacts of climate change on those who already experience disadvantage or ill-health (i.e., equity impacts);
- Reducing the health sector's contribution to climate change.

As well as individual members, we are backed by 19 of New Zealand's leading health professional organisations for our Health Professionals Joint Call to Action on Climate Change and Health (see https://www.orataiao.org.nz/friends_and_supporters). This support includes the New Zealand Medical Association, the New Zealand Nurses Organisation and the Public Health Association, plus numerous specialist colleges. Together, these organisations represent tens of thousands of our country's health workforce.

As an organisational member of the Board of the Global Climate & Health Alliance, we work with a worldwide movement of health professionals and health organisations focused on the urgent health challenges of climate change - and the health opportunities of climate action. OraTaiao signed the Doha Declaration on Climate, Health and Wellbeing of December 2012, which reflects this international perspective.

Introduction

"Achieving net zero emissions is the most important global health intervention now and for decades to come," and the "health benefits will outweigh the costs of mitigation policies, even without considering the longer-term health and economic benefits of avoiding more severe climate change,"[1] according to the former WHO Director-General, Dr Margaret Chan.

Not all emissions reductions policies are equal in how they affect other challenges in Aotearoa such as our high rates of cardiovascular disease, obesity, diabetes, respiratory disease, suicidal depression, and many other non-communicable illnesses. International modelling (released on the same day as the Commission's draft advice) shows the possibility of recouping the costs of emissions-reducing policies through the health gains made, but only with well-designed policies.

Our submission is focused on health and health equity co-benefits of well-designed emissions reduction policies, and in fully embedding te Tiriti o Waitangi and te ao Māori within the Commission's advice. We regard careful modelling of these, plus wider economic and social impacts, as the key to connecting the top-down Aotearoa contribution (Nationally Determined Contribution) and the bottom-up emissions budgets. The potential to recoup costs of emissions reducing policies with significant health gains, let alone savings from avoided climate changes, must drive responsible and effective emissions budgets.

We strongly recommend the urgent formation of a health advisory group for the realisation of important co-benefits for New Zealanders' future health and well-being.

References

[1] Chan Fung Fu-Chun, M. (2021) Accelerating towards net zero emissions: the most important global health intervention. *The Lancet Planetary Health*. 5 (2), e64-e65.

Consultation question: Are you here to tell us your one big thing?

OraTaiao advocates a focus on **climate policies which improve human health and health equity, and centralise te Tiriti o Waitangi.**

We must strive to cut emissions in ways that improve our population's health, health equity and wellbeing. However, the Commission's draft advice does not adequately focus on health and wellbeing, and **misses a huge opportunity to simultaneously improve the health of New Zealanders.**

Recent work clearly shows that optimising health benefits depends on a country's chosen path to decarbonisation[2], such as how it manages resource extraction, food production, social organisation, new technologies, and air and other environmental pollution. To put Aotearoa on a path to achieving health and health equity gains from climate policies, **we recommend the Minister for Climate Change appoint a public health specialist to the Commission, and that the Commission set up a multi-disciplinary health advisory group to review Aotearoa's emission reduction options**. We refer to this in more detail in response to *The Commission's six big issues - policy priorities to reduce emissions.*

The right to the highest attainable standard of health is recognised in the UN Declaration on Human Rights[3], and hauora (health and wellbeing)[4] is one of the taonga guaranteed to all citizens under te Tiriti o Waitangi. The Commission should go further to embed health and wellbeing within its advice to Government and recognise, quantify and optimise human and environmental health co-benefits in conjunction with Māori understanding of Aotearoa as providing for tangata whenua.

There is no discussion of mental health within the document, despite the known mental health effects of the climate crisis[5,6] and the benefits to mental health and well-being of "doing our bit", both individually and collectively, to mitigate climate change[7]. Health and wellbeing must be a top priority, including mental health.

The Commission's draft advice must consider and advise a more responsible Nationally Determined Contribution (NDC) based on our Paris Agreement commitments to take into account New Zealand's greater capability and considering our high emissions (historic and current). Our detailed recommendations in *Detailed Sections 21-23. Our Nationally Determined Contribution (NDC)* give further guidance on this.

OraTaiao asks that the draft advice goes further to **centralise te Tiriti o Waitangi.** The Commission's recommendations presently **fail to adequately emphasise te Tiriti o Waitangi**. For example, in revising Aotearoa's Nationally Determined Contribution (NDC), we note that the Waitangi Tribunal states[8] in their Ko Aotearoa Tēnei (Wai 262) report: "...that it is for Māori to say what their interests are, and to articulate how they might best be protected - in this case, in the making, amendment, or execution of international agreements. That is what the guarantee of tino rangatiratanga requires."

While the draft advice report acknowledges the "Treaty Partnership", it is important that we don't reduce the Tiriti kaupapa and narrative to simply an equity argument. We need the special partnership relationship, as contemplated by te Tiriti, to be front and centre, and acknowledging that Māori are **not** just one-of-many stakeholders

Throughout our submission we have indicated some ways in which te Tiriti could be brought more centrally in the Commission's advice.

We have structured our submission below to respond to all the Commission's questions, but we have particularly focused on the sections where we can highlight interventions which can improve health and health equity as well as reduce emissions.

References

[2] Hamilton, I. et al. (2021) The public health implications of the Paris Agreement: a modelling study. *The Lancet Planetary Health*. 5(2), E74-83.

[3] United Nations (1948) Universal Declaration of Human Rights. GA Resolution 217A (III), UN GAOR. Resolution 71,UN Document A/810. 1948, United Nations: New York.

[4] Reid, P. & Robson, B. (2007) *Understanding health inequities* in Robson, B. & Harris, R. (eds). Hauora: Māori standards of health IV. A study of the years 2000-2005. Te Rōpū Rangahau Hauora a Eru Pōmare: Wellington.

[5] Berry, H. et al (2010) Climate change and mental health: a causal pathways framework. *Int J Public Health*. 55: 123-132.

[6] Royal Australian and New Zealand College of Psychiatrists (2020) *Addressing the mental health impacts of natural disasters and climate change-related weather events. Position statement*. Available at: https://www.ranzcp.org/news-policy/policy-and-advocacy/position-statements/addressing-mental-health-impacts-natural-disasters (Accessed 23/02/2021)

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The Commission's six big issues - the pace of change

Big issues question 1. Do you agree that the emissions budgets we have proposed would put Aotearoa on course to meet the 2050 emissions targets?

OraTaiao **strongly disagrees** because the proposed emissions budgets are neither sufficiently ambitious nor set to be achieved quickly enough:

They do not meet our international obligations under the Paris Agreement 2015 and are inconsistent with our International Panel on. Climate Change 2030 targets.

Aotearoa has a greater responsibility as a developed nation to contribute to a globally equitable response, so at a minimum our International Panel on Climate Change 2030 targets should be met. The Climate Change Response (Zero Carbon) Amendment Act 2019 describes the purpose of emissions budgets is to meet the 2050 target and for New Zealand to contribute to global efforts to have less than 1.5°C of global heating (section 5W). Without more ambitious emissions budgets, Aotearoa will contribute to deepening health, social and economic inequities. **The health and socioeconomic impacts of climate change disproportionately harm populations that have contributed least to the problem.** Moreover, climate change interacts with existing structural and socioeconomic determinants of health exacerbating long standing health inequities within and between countries[9].

The budgets ignore the importance of urgent rapid cuts and instead postpone the deeper necessary greenhouse gas emissions cuts to the second and third budget; this both foregoes the strategic advantages of urgent action and raises the issue of intergenerational equity and tikanga. It also overlooks the opportunity for earlier cuts by using existing technology and behavioural change rather than waiting for a scaling up of newer technologies, for example with respect to transport emissions.

The cuts to biogenic methane are on the lowest trajectory of the 24 to 48 percent cuts needed by 2050.

We support the Commission's focus on decarbonisation and the need to move away from depending on forestry sinks alone to achieve net emissions reductions within Aotearoa.

References

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The Commission's six big issues - future generations

Big issues question 2. Do you agree we have struck a fair balance between requiring the current generation to take action, and leaving future generations to do more work to meet the 2050 target and beyond?

OraTaiao **strongly disagrees** that a fair balance has been struck.

The principles of both intergenerational equity[10] and tikanga require the current generation to do everything possible to address the climate crisis and reduce the harm inflicted on future generations. We must also catch up on years of neglected opportunities to have taken earlier action.

The United Nations Committee on the Rights of the Child has said that "climate change is one of the biggest threats to children's health and exacerbated health disparities."[11] Failing to implement healthy and equitable climate policies now accepts an avoidable burden of ill-health in future generations, disproportionately affecting children from disadvantaged communities[12]. The climate is one of the crucial natural resources that States hold in trust for future generations.

The risk of a 1.5°C overshoot and crossing tipping point boundaries may create an irredeemable situation for future generations. This is an unacceptable risk to be avoided at all costs.

References

[10] Mary Robinson Foundation (2015) Meeting the needs of Future Generations: Applying the principle of intergenerational equity to the 2015 processes on climate change and sustainable development. Position paper. Dublin. Available at: https://www.mrfcj.org/wp-content/uploads/2015/09/MRFCJPositionPaper_MeetingtheNeedsofFutureGenerations_12August2015.pdf (Accessed 23/02/2021)

[11] United Nations Committee on the Rights of the Child. General Comment No. 15 (2013) on the right of the child to the enjoyment of the highest attainable standard of health (art. 24), 17 April 2013, UN Doc. CRC /C/GC/15 [Internet]. Geneva. Geneva: United Nations Committee on the Rights of the Child; 2013.

[12] Bennett H, Jones R, Keating G, Woodward A, Hales S, Metcalfe S. Health and equity impacts of climate change in Aotearoa-New Zealand, and health gains from climate action. *NZ Med J*. 2014;127(1406)

The Commission's six big issues - our contribution

Big issues 3. Do you agree with the changes we have suggested to make the NDC compatible with the 1.5°C goal?

Introduction

OraTaiao **strongly disagrees** as overall, the recommended Nationally Determined Contribution (NDC) changes are neither ambitious nor responsible enough and crucially, do not reflect the purpose of the Climate Change Response Act 2002[13], nor NZ's current international agreement commitments on effort-sharing.

We **strongly agree** with the Commission's assessment of the current NDC as not compatible, and that net emissions must reduce much more than 35 percent below 2005 gross levels (11 percent below 1990 gross levels).

Most importantly, this draft advice needs to **adequately** respond to the Minister of Climate Change's request to recommend changes to ensure NDC compatibility[14]. There is no indication of the necessary scale of NDC responsibility to be compatible. Yet compatibility is central to the purpose of NZ's climate legislation, and drives the rest of the Commission's advice, including emissions budget size, and "clear and stable climate change policies".

We agree that the exact NDC level is ultimately a value judgement to be made by members of Parliament. However, NZ has already committed to international effort-sharing principles, and the Commission has been asked to recommend changes to **ensure compatibility**. This draft advice must give guidance, acknowledging te Tiriti, Pasifika relationships and sovereignty, our climate law, and NZ's commitment to international agreements on effort-sharing, including the Paris Accord.

Silence on the scale of incompatibility is flying blind on building emissions budgets. The NDC is NZ's top-down responsibility, emissions budgets our bottom-up response, with sufficiently sophisticated economic analysis determining the balance of domestic reductions versus carbon markets (when these markets are available).

We **strongly agree** with the Commission's recommendations to: include all gases; use GWP100 values; develop international travel mitigation mechanisms; transparently

report annually on NDC plans; contribute global climate finance (much more); and meet the NDC through a mix of domestic reductions and removals, plus carbon markets (with purchase strategy and fiscal risk management also reported).

A Compatible Contribution

(i) Te Tiriti o Waitangi

OraTaiao commends the Commission considering how actions align with the values of kotahitanga, manaakitanga, tikanga and whanaungatanga. These values of unity, collective action, seeing the mana of others as equal or greater than one's own, interdependence, generational loyalty, and doing the right things in the right way, must drive the contribution changes recommended for compatibility with the global effort to limit warming to 1.5°C, and capacity for NZ to adapt to the effects of climate changes.

OraTaiao recommends that NDC advice starts with Māori interests. Or at least outline the steps, resourcing and timeline to understand and fairly represent Māori interests and partner with Māori when presenting Aotearoa's compatible global contribution prior to COP26 this year. As the Waitangi Tribunal has stated: "that is for Māori to say what their interests are, and to articulate how they may best be protected – in this case, in the making, amendment, or execution of international agreements. That is what the guarantee of tino rangatiratanga requires."[15]

(ii) Motivation

As a very small (albeit high-emitting) nation, we are a "climate taker" rather than a "climate maker". "Our fair share" is our currency in bidding for the world to take the steps that protect the stable climate, ocean conditions and global markets that NZ relies on. If our contribution as a relatively wealthy developed nation is incompatible with a 1.5°C limit, we lead others to adopt a weaker approach.

Staying within the limit of 1.5°C of warming has significant health implications as laid out by the Intergovernmental Panel on Climate Change: "Climate-related risks to health, livelihoods, food security, water supply, human security, and economic growth are projected to increase with global warming of 1.5°C and increase further with 2°C".[16]

We cannot take this risk: The climate costs are too great for Aotearoa, let alone our Pacific and global neighbours. Formal and familial relationships with Pasifika (who lobbied to limit warming well under 1.5°C) and Pasifika sovereignty must also shape our compatible contribution.

(iii) Ten-fold Contribution

The Climate Equity Reference Project (CERP) capacity/responsibility Intergovernmental Panel on Climate Change Pathway 1 analysis for NZ ranges from 117 percent reductions on 1990 levels at a medium progressivity approach, to 133 percent reductions at high progressivity levels. This analysis is consistent with NZ's commitment to clear international agreements on effort-sharing, including the Paris Accord. We note that: "Human rights principles of equality and non-discrimination give priority to those who are most vulnerable"[17]. We also note that CERP does not include domestic removals via land use, land-use change and forestry because of credibility concerns. We accept that NZ will continue with gross-net accounting, and should consult directly with CERP over any calculation changes for contribution size.

To commit to less than a tenfold contribution increase, commits to harming others. Contributing less than our fair share rejects the mana of the other humans we share this planet with.

Increasing our contribution by this order of magnitude (ten times) for compatibility is **essential advice** for the Minister and our country, so NZ develops "clear and stable climate change policies". To start the draft advice by applying global averages to NZ is misleading, and ignores NZ's existing international effort-sharing commitments, including the Paris Accord. We also note that NZ alone is responsible for domestic resource distribution as a wealthy nation, current domestic inequities are not an excuse for an incompatible global contribution.

Other Contribution changes

(i) Greenhouse Gases

For clarity and consistency, we recommend the Commission uses GWP100 values throughout the advice (either directly, or in brackets as translations).

With at least a tenfold increase in contribution responsibility, NZ needs flexibility to reduce our three main gases in the most economic ways possible, differing over time (for example, given the greater radiative forcing of methane in the shorter term, rapidly reducing methane may give much needed "early wins"). Rapid global methane decreases are also much more in NZ's direct interest than widely understood – as we have urupa, kaimoana and expensive infrastructure along our coastlines threatened by methane warming and expanding our oceans for hundreds of years [18,19]. For self-interest, we may want to model much faster methane cuts to the world. Urgently developing international travel mitigation mechanisms is another high-emitting interest area for NZ.

(ii) International versus domestic mitigation, counting health co-benefits

OraTaiao also **strongly agrees** that NZ must urgently proactively develop international carbon trading access, including smaller trading partnerships everywhere we can develop these. Getting the best level of international emissions trading investments to meet NZ's responsible NDC will mean careful modelling that considers both the short and longer term, co-benefits and flow-on impacts. International credits (like domestic removals) are a precious resource not to be used lightly.

Investing quickly now in getting our own country **'net-zero ready'** will mean considerable savings later, as well as increasing our credibility and advocacy capacity in international climate talks. Any proposed delays beyond 2021 must be thoroughly costed over our longer term, considering whanaungatanga and rising offshore mitigation costs.

Gross Domestic Product does not evaluate NZ's well-being, future resilience, and optimal domestic/international mitigation balance. We urge use of more contemporary analytical frameworks such as Raworth's *Doughnut Economics* model[20,21] and methods including health impact assessments and cost-effectiveness analysis.

OraTaiao urges counting health co-benefits to evaluate mitigation strategies[22]. Recent international modelling (nine nations covering half the world and responsible for 70 percent of emissions) shows with Paris Accord-compatible contributions health-centred climate policies, the **health co-benefits outweigh mitigation costs**, not counting the health gains from avoided climate changes.

While Aotearoa has some important contextual differences, this modelling indicates substantial health co-benefits likely from a health-centred responsible NDC, potentially outweighing mitigation costs, and significantly reducing non-communicable diseases (currently over 27,000 deaths and 89 percent of total deaths in Aotearoa each year[23]). In other words, these are health equity policies that justify immediate action on their own merits alone – climate protection more than doubles their value. Around one-fifth of our government spending is directly on health[24], largely on long-term conditions directly responsive to healthy climate action.

It is expected that the adverse effects of climate change will disproportionately affect Indigenous populations, including Māori. The centering of te Tiriti o Waitangi in the development of climate policies can ensure the equitable distribution of health co-benefits across the population of Aotearoa. It is possible for the health benefits of climate change mitigation to be considered at the same time as designing climate policy that evaluates the climate risks specific to Māori communities. This creates an opportunity for climate policy to fulfil obligations relating to the right to health conferred to Māori under te Tiriti, and the realisation of health co-benefits that reduce health inequities in Aotearoa.

Public support for Government responses to our COVID-19 pandemic threat shows how highly we value health and survival, let alone strong public support for avoided climate changes. Health framing of the NDC could build much greater shared and unifying support.

This February, despite a year of global pandemic pressure, the WHO's former Director General, Dr Margaret Chan stated: "*...achieving net zero emissions is the most important global health intervention now and for decades to come*." and "*Health benefits will outweigh the costs of mitigation policies, even without considering the longer-term health and economic benefits of avoiding more severe climate change*."[25]

(iii) Transparent annual reporting

Transparency through annual reporting of NDC plans (including domestic action, domestic removals and offshore mitigation) is essential so the public can hold the government to account. These are critical decisions for NZ's current and future well-being - everyone in NZ has the right to know how these decisions are reached, and challenge any omissions, factual errors, or weak assumptions. Protecting our climate is our biggest "team of 5 million" task.

OraTaiao also strongly recommends that the Commission reports annually on our future risk areas such as: international shipping and aviation emissions exposure; consumption emissions and circular economy growth; global methane trends and likely impact on NZ's coastlines and infrastructure, as sea levels rise. This will help us better identify and manage risks quickly.

(iv) Climate finance

We recommend **immediately increasing NZ's climate finance levels through a VOTE Climate Finance budget[26].** Because of the COVID-19 pandemic, other critical funding aid must also rapidly increase towards 0.7 percent of our Gross National Income to overseas development assistance, focusing on least developed countries. These measures all add credibility to NZ later offering additional climate finance as potentially another mechanism for fulfilling our revised responsible NDC.

(v) Greater certainty for humanly adaptable climate changes

Finally, we hope that more certain pathways than **50-66 percent** will be available (with the Intergovernmental Panel on Climate Change AR6 Physical Science report due in weeks), to update this draft advice and recommendations accordingly. Meanwhile, the draft advice must be much clearer about the implications of the uncomfortably low probabilities of the Intergovernmental Panel on Climate Change 1.5°C pathways, including repeating that the faster the world cuts emissions, the healthier our odds of limiting warming to a humanly adaptable 1.5°C. Much more certainty than two-thirds or a coin toss is usually expected with health and safety. Even more so, when humanity's future is so profoundly threatened. For mental, emotional, social and

physical health, we owe certainty and hope to ourselves and generations who follow us.

References

[13] Section 3(aa) states, to "provide a framework by which New Zealand can develop and implement clear and stable climate change policies that—**(i)** contribute to the global effort under the Paris Agreement to limit the global average temperature increase to 1.5° Celsius above pre-industrial levels; and **(ii)** allow New Zealand to prepare for, and adapt to, the effects of climate change:" (reference: https://www.legislation.govt.nz/act/public/2002/0040/latest/DLM158590.html)

[14] The Minister for Climate Change asked the Commission to report on: (a) the compatibility of NZ's current NDC with contributing to the global effort under the Paris Agreement to limit global warming to 1.50 C; and (b) recommend any changes to **ensure** it is compatible. (reference: https://ccc-production-media.s3.ap-southeast-2.amazonaws.com/public/Advice-to-govt-docs/Terms-of-Reference-Section-5K-request-v3.pdf)

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[24] New Zealand Treasury. Budget 2018: Summary Tables for the Estimates of Appropriations 2018/19. Wellington: The Treasury, 2018. https://www.budget.govt.nz/budget/pdfs/summarytables/estimates/b18-sumtabestimates.pdf

[25] Fu-Chun MCF (Margaret Chan). Accelerating towards net zero emissions: the most important global health intervention. Lancet Planet Health. 2021; 5(2):e64-e65. https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196(20)30296-5/fulltext

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The Commission's six big issues - role and type of forests

Big issues 4. Do you agree with our approach to meet the 2050 target that prioritises growing new native forests to provide a long-term store of carbon?

OraTaiao **agrees** with the approach to provide a long-term store of carbon.

Native forests offer ecosystem rehabilitation and protection, and we depend on the health and biological richness of the living world.

We support the significant increase in new native forests and the assumption that no further native deforestation occurs from 2025. All native habitats must be incorporated into this approach. For example, wetlands and tussock should be recognised for their role in storing carbon and be protected from destruction. We further recommend that priority be given to strategies to promote the retention and protection of existing native forest, wetland and tussock areas on both public and private land.

Our approach to forestry must consider how Mana Whenua will be enabled to act as Kaitiaki.

We support the development of this policy in conjunction with an increased focus on emission reduction rather than offsetting.

The Commission's six big issues - policy priorities to reduce emissions

Big issues 5. What are the most urgent policy interventions needed to help meet our emissions budgets? (Select all that apply)

OraTaiao **supports actions to address barriers**, **pricing to influence investments and choices** and **investment to spur innovation and system transformation**. We strongly recommend policy interventions which reduce greenhouse gas emissions **and** also **benefit health and improve health equity.**

Recommendation 1

In order to ensure Aotearoa's response to the climate crisis also improves our health and health equity, OraTaiao strongly recommends **public health representation on the Commission's board and the immediate establishment of a multidisciplinary health advisory group to the Commission**.

Why?

There are significant opportunities to improve the health and wellbeing of New Zealanders at the same time as reducing greenhouse gas emissions. For example, non-communicable diseases (including cardiovascular disease, chronic respiratory, cancers and diabetes), account for 89 percent of deaths annually in Aotearoa (over 27,000 deaths)[27], and disproportionately affect Māori[28]. These can be substantially reduced through climate policies promoting safe and accessible active and public transport, sustainable food systems and healthy homes.

The Commission would benefit from drawing on the wealth of evidence related to the environmental and social determinants of health to strengthen its recommendations. Public health experts could specifically help in this area as they are trained in population health, epidemiology, disease prevention, and physical and mental health promotion. Moreover, they are skilled in the organisation of health services and in evidence-based methods for promoting healthy behaviour change on a societal level. Just as the response to the Covid-19 pandemic has benefitted from public health expertise, the climate crisis affects the whole population and requires this same level of understanding of effective interventions and health and equity impacts. We also

recommend that one of the experts is Māori in order to assist with centralising te Tiriti o Waitangi.

In the sections below we highlight urgent policy interventions to improve health and reduce emissions. We have particularly focused on areas which have the biggest opportunities to reduce greenhouse gas emissions and/or to have the greatest health and health equity co-benefits.

Recommendation 2

Centralise te Tiriti o Waitangi (the Treaty of Waitangi) in climate policy: Please see our response to *Consultation Question 7 Genuine, active and enduring partnership with iwi/Māori*.

OraTaiao agrees with the Commission's recommendations that Māori communities are appropriately resourced for the transition to a low emissions Aotearoa and that there is effective partnership with iwi/Māori at every stage of the policy development. However there need to be concrete suggestions on how this "partnership" will work. The report has stopped short of recommending anything specific for Māori in terms of adaptation and climate mitigation around co-constructed just transitions.

Recommendation 3

Increase and improve active and public transport: Please see *Consultation Question 14 Transport* for evidence and OraTaiao's specific recommendations.

We have placed focus on transport emissions as these are one of the fastest growing areas of greenhouse gas emissions in New Zealand, and the form of transport we use has significant implications for health and equity. While we agree with the Commission's recommendation to rapidly decarbonise the vehicle fleet, we have significant concerns the advice represents a continuation of the status quo dominance of private vehicle ownership. What is required is a transformational shift in transport mode to safe and accessible active and electric public transport, and from road to sea and rail freight. This will not only address greenhouse gas emissions but also improve health, wellbeing and equity.

Recommendation 4

Develop healthier low-emissions food systems: There is an understandable focus on food **production** emissions within the Commission's advice considering that agriculture accounts for almost half of New Zealand's overall emissions[29]. However, the advice needs to be more transformative in an area which is in desperate need of

change. There need to be stronger targets for reducing biogenic methane, and it would be advantageous to take a food systems approach in order to take into account food consumption (diets) as well as food production which enables the health co-benefits of a low-emissions agricultural system to be realised.

The necessary changes will need to be just and equitable. In response to *Consultation Question 16 Agriculture*, we propose a food and agricultural system that would improve health and equity, which supports a just transition for agricultural workers and rural communities, which is based in te Tiriti, and will significantly reduce greenhouse gas emissions.

Recommendation 5

Move away from fossil-fuels and increase insulation in homes and buildings: Large health gains could be made by the cessation of burning fossil fuels. A recent study estimated that one in five global deaths were attributable to air pollution from fossil fuel burning.

We also need to consider the state of unhealthy homes in New Zealand which is contributing to respiratory disease and other illnesses and disproportionately affecting children, Pacific and Māori. Policies to ensure well insulated buildings and clean heating are needed to improve health and reduce emissions.

Recommendation 6

Recognise the mental health impacts of climate change: Advice to the government needs to include mental health in relation to climate change. As the consultation questions fail to specifically address this point, we are including a section here.

There are known impacts of climate change on mental health – for example from extreme weather events posing risks which impact on wellbeing generally[30], and increase the incidence of acute traumatic stress, post-traumatic stress disorder (PTSD), depression, anxiety, substance use disorders, and suicide. Indirect effects on mental health are likely to arise from damage to land, infrastructure and community functioning, leading to climate-related migration, armed conflict and other violence[31]. As with physical health, mental health impacts can be disproportionately affect already disadvantaged communities. People with existing mental illnesses are also more exposed to the physical impacts of climate change[32].

There are also likely mental health effects, particularly among children, arising from the perception that our society is failing in its duty to adequately address this existential threat. Conversely, individual and collective action to mitigate the crisis is regarded as an important means to address climate-related anxiety and depression.

Accordingly, OraTaiao believes there will be appreciable mental health benefits, particularly to disadvantaged communities and to children, of ambitious and visible policies regarding transport, food production, and emissions generally.

Recommendation 7

Reduce emissions in the healthcare sector: There are opportunities to reduce emissions in the health sector. The National Health Service in the United Kingdom has made a commitment to be net zero by 2040 and has produced a document which lays out how this can be done[33]. In New Zealand the current government has set a target of carbon neutrality for the public sector by 2025. We recommend the commission give specific advice:

- All District Health Boards to annually measure their carbon footprints and report on emissions reductions annually towards the Government's proposed target for the public sector.
- Eliminate all coal boilers in hospitals by 2025
- F-gases are a significant contributor to healthcare emissions, especially anaesthetic gases or metered-dose inhaler propellants. We recommend the draft advice directly address these, and offer advice for rapidly reducing their use as is already clinically indicated (for inhalers[34]), or where clinical equipoise exists (anaesthesia).
- Procurement is the major source of healthcare emissions. We support Necessary Action 15 (p.126 of draft advice) under consultation question 19 requiring government procurement policies to "include climate change considerations", but recommend this advice be strengthened significantly. In the health sector Pharmac is in the process of taking control of procurement of all medical devices. Pharmac should be required to include climate change in its "factors for consideration" when procuring medical devices.

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The Commission's six big issues - technology and behaviour change

Big 6. Do you think our proposed emissions budgets and path to 2035 are both ambitious and achievable considering the potential for future behaviour and technology changes in the next 15 years?

OraTaiao **disagrees with the proposed emissions budgets as they are overly focused on technology change**.

The draft advice is overly focused on future technology changes when we already know actions we can take now to achieve more rapid decarbonisation and reform of our food systems. Future technology changes may increase the pace of change, but should not be depended upon when there are actions we can take now.

"Ambitious and achievable" must also be evaluated in the context of the relative benefits, costs, and risks in meeting some of our responsible Nationally Determined Contribution (NDC) through international emissions trading over the coming decades. OraTaiao calls for much more sophisticated economic modelling in the draft advice: Aotearoa's future health and well-being matters, likewise the other humans we share this world with.

The advice must account for projected health costs from delayed action, and the health cost savings resulting from changes in its advice, and in amendments to the 2025-2030 and 2030-2035 budgets.

The draft advice must also recognise that behaviour is often the result of our system and can be changed by government policy. In order to maximise health benefits and emissions cuts, and to optimise behaviour change, we recommend: Public health expertise on the Climate Change Commission, and a multidisciplinary health advisory group including behaviour change expertise (e.g. from psychology, health promotion, and social and behavioural science).

1. How the Commission developed its advice

Consultation question 1. Do you support the principles we have used to guide our analysis?

OraTaiao **does not support** the principles used to guide analysis. Although we are in agreement with some of the principles the Commission has used to guide the analysis, there are significant areas where improvements and adjustments can be made.

The Commission has not drawn on the vast evidence base or expertise around climate change and health. There are known measures which can be taken to reduce emissions and also improve health and health equity, and there are known impacts of climate change on health. **In order to ensure the wellbeing of New Zealanders** we need effective climate change policy which also benefits health and reduces inequalities, and to centralise Te Tiriti o Waitangi. The Commission needs to involve public health experts alongside other experts on its board and by establishing a health advisory group, to ensure the advice it's giving to Government is moving NZ forward in a way that will also address NZs pressing health issues.

We recommend an ongoing development and prioritisation of **true partnership through collaboration with Iwi/Māori**, and a greater focus on accountability (an implicit premise of Te Tiriti). This has to be realised in order to achieve meaningful health outcomes and impacts for Te Ao Māori/iwi Māori - people and planet - and to give essence to rangatiratanga.

The Commission's reports and recommendations have a focus on greenhouse gas mitigation, that is how New Zealand could reduce emissions to meet the targets in the Climate Change Response Act, while achieving economic growth targets. A lot of the emphasis goes on the economic and practical impacts on sectors which produce emissions, such as agriculture and transport, and using forestry to absorb CO2. But there isn't a detailed consideration of the direct and indirect impacts of climate change (for example on health and biodiversity), or adaptation (how New Zealand should live with a warmer and less stable climate). **We think that the severity of impacts and challenges of adaptation should be used to push mitigation further so that New Zealand adopts a track consistent with no more than 1.5°C warming.** According to Stern, "greenhouse gas emissions are externalities and represent the biggest market failure the world has seen"[35]. Economic models have been developed which acknowledge both our ecological limits and social needs, for example Kate Raworth's

Doughnut Economics, and the value of a stable climate has been recognised by economists as part of natural capital as outlined in the recent Dasgupta review[36], and should be considered as such in Aotearoa's economic models. This would more meaningfully recognise our human needs and constraints.

The review also stated that we need to change our measure of economic success to guide us on a more sustainable path, "As a measure of economic activity, Gross Domestic Product (GDP) is needed for short-run macroeconomic analysis and management. However, GDP does not account for the depreciation of assets, including the natural environment. As our primary measure of economic success, it therefore encourages us to pursue unsustainable economic growth and development."

Recommendation 1

Most importantly, despite its brief mention in principle 7 (p.30 of the draft advice) **health costs and co-benefits must be incorporated into the analysis** in a meaningful way or a huge opportunity will be missed.

Recommendation 2

Clearly signal the **central importance of Te Tiriti o Waitangi to New Zealand in the principles**, and make a commitment to centralise it in Aoteatoa's response to climate change.

Recommendation 3

We recommend that consideration should be given to adoption of a ***Doughnut Economic* model** in the principles guiding the Commission's analysis[37,38] in order to take account of the multiple and interlinked planetary and societal boundaries for a just transition to a low emissions future.

Recommendation 4

Make it a principle for Aotearoa to adopt actions setting us on a path to "**at least** meet the 2030 and 2050 emissions targets, including achieving the deeper cuts in biogenic methane".

Recommendation 5

We **strongly agree** with the principles adopted within the draft advice: "forest sequestration should not displace
making gross emissions reductions" (p.29).

Recommendation 6

We strongly agree that, "how Aotearoa responds to climate change should consider who will be most impacted, how those impacts can be mitigated and **how existing inequities can be reduced**. It should consider equity across different groups of

society, regions and communities and generations" and to "increase resilience to climate impacts.

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2. Emissions budgets numbers

Consultation question 2. Do you support budget recommendation 1? Is there anything we should change and why?

	Too ambitious	About right	Not ambitious enough	Don't know
Emissions budget 1 (2022 – 2025)				
Emissions budget 2 (2026-2030)				
Emissions budget 3 (2031-2035)				

The emissions budgets outlined within the draft advice are **not ambitious enough**.

This particularly applies to the first budget for the period 2022-2025, as the subsequent two budgets can be amended in future years. However, the initial budget average annual reduction of 1.5 MT CO2e over 2018 emissions (p.31) is not enough to set in place the rapid decarbonisation that is needed: Slow decarbonisation will make it more difficult to meet the later budget requirements. Similarly a rapid reduction will make more ambitious targets to be developed in future budgets, and allow increased flexibility in our response. The initial budget can be made more ambitious by adopting a number of rapid actions such as our recommendations outlined under *Big Question 5 What are the most urgent policy interventions needed to help meet our emissions budgets?"*.

Further discussion on this topic is made below under *Consultation question 3*.

The emissions budgets are also insufficient to meet our international Nationally Determined Contributions (NDC) obligations as acknowledged by the Commission in its report (p155). and would result in intergenerational inequity.

OraTaiao **agrees** with long-lived greenhouse gases, and Aotearoa's proposed all gases emissions budgets, being expressed in units of Mt CO2e, based on the GWP100 metric from the Intergovernmental Panel on Climate Change's AR4 and net emissions and removals by forestry being calculated using the modified activity-based approach.

3. Breakdown of emissions budgets

Consultation Question 3. Do you support our proposed break down of emissions budgets between gross long-lived gases, biogenic methane and carbon removals from forestry? Is there anything we should change, and why?

	Too ambitious	About right	Not ambitious enough	Don't know
Gross long-lived gases				
Biogenic methane				
Forestry				

We **do not support** the breakdown of emissions budgets between gross long-lived gases, biogenic methane and carbon removals from forestry. As we outlined above (in Consultation Question *2)*, the emissions cuts are not ambitious nor swift enough and we recommend additional measures be taken to improve this.

This is particularly important with respect to biogenic methane. NZ's targets (as acknowledged on p.27 of the draft advice) are to "reduce biogenic methane emissions by **at least** 10 percent by 2030 and 24 to 47 percent by 2050 and beyond, compared to 2017 levels." Thus a 10 percent reduction should be seen as an absolute minimum in the legislation rather than an optimal target, and that more ambitious targets are not just not precluded, but recommended.

With an adoption of the measures outlined in *Big Question 5*, and under the agriculture section below, improved targets are achievable and would put Aotearoa on target for the more ambitious 2050 target.

We recommend much stricter targets for carbon dioxide within the first budget in particular, and for nitrous oxide in all budgets.

We **strongly agree** with the following statement: "Relying too heavily on forestry removals to offset emissions carries risks. It would require ongoing conversion of land to continue offsetting emissions and put the burden of reducing gross emissions on future generations," and agree it aligns with the principles of the Commission and of a just transition and intergenerational equity (p.33).

4. Limit on offshore mitigation for emissions budgets and circumstances justifying its use

Consultation Question 4. Do you support budget recommendation 4? Is there anything we should change, and why?

We **fully support** that the limit on offshore mitigation should be zero for the **first three emissions budgets** and that only circumstances that at this stage would justify the use of offshore mitigation is as a last resort in exceptional circumstances beyond the Government's control.
We acknowledge these emissions budgets as contributing towards our NDC in conjunction with other measures, and that these other measures to strengthen our NDC (over and above strengthened emissions budget) may require offshore mitigation. This is discussed further under the NDC section.

5. Cross-party support for emissions budget

Consultation question 5. Do you support enabling recommendation 1 on cross-party support for emissions budgets? Is there anything we should change and why?

OraTaiao **fully supports** the enabling of cross-party debate and support for emissions budgets. However, we do expect that strong emissions reductions targets which also improve health and health equity are in the interests of all political parties.

6. Coordinate efforts to address climate change across Government

Consultation question 6. Do you support enabling recommendation 2 on coordinating efforts to address climate change across Government? Is there anything we should change and why?

OraTaiao **fully supports** and commends these recommendations. We are particularly pleased to see recommendations for clear accountability to be established within the Government at the **outset of each emission plan,** and policies and strategies to be developed for future emissions plans within the current one. We also commend the production of clear, measurable progress indicators.

7. Genuine, active and enduring partnership with iwi/Māori

Consultation question 7. Do you support enabling recommendation 3 on creating a genuine, active and enduring partnership with iwi/Māori? Is there anything we should change and why?

OraTaiao fully **supports** enabling a genuine, active and enduring partnership with iwi/ Māori - but to achieve this, **the Commission's recommendations must change. Although te Tiriti partnership is mentioned in the consultation document, there is no real definition of what that means or specifically requires the Government to do.** The report does recommend that: "Care should be taken to make sure climate related policies do not further compound historic grievances for Māori. To give effect to the Treaty Partnership, central and local Government need to acknowledge iwi/Māori rights to exercise rangatiratanga and kaitiakitanga in a joint plan to reduce emissions." (p.11) – **agreed - with qualifications.**

We **agree** that "central and local Government should support Māori communities to ensure they are appropriately resourced for the transition to a low emissions Aotearoa" (p.19)**.** and that "partnership with iwi/Māori at every stage of the policy development process will be critical to support this (policy and strategy for emissions reduction)" (p.104). **Partnership is, unfortunately, always up for interpretation,** and without more specific planning the critical goal of **true partnership through collaboratio**n will not be achieved. The report has thus far stopped short of sufficient recommendations for iwi Māori in terms of adaptation and climate mitigation around co-constructed just transitions.

Similarly, whilst acknowledging the "Treaty Partnership" in the report, it's important that we don't unintentionally reduce a te Tiriti kaupapa and narrative to simply an equity argument. We need **the special relationship, as contemplated by te Tiriti, to be front and centre**, acknowledging that Māori are not just one-of-many stakeholders.

We recommend the concepts of kaitiakitanga (guardianship), kotahitanga (unity), manaakitanga (caring), and whakatipuranga (future generations) be clearly applied to every section of the Commission's advice to Government. For example, manaakitanga rests on the mana of others being equal or greater than one's own. In considering how Aotearoa contributes to keeping global heating well below 1.5°C, our contribution (NDC) must respect the mana of all we share this planet with. For our Pacifica whanau and neighbours, this includes their whenua too.

The Commission's report states that, "As a country we need transformational and lasting change to meet our targets and ensure a thriving Aotearoa for future

generations". However, to be truly transformative in this climate change mitigation and adaptation kaupapa, the report must recommend **the Crown take a stronger approach to achieving real and better health and wellbeing outcomes for Māori by sharing or handing over real power**.

Accountability - formative and summative

In regard to Partnership with Māori, OraTaiao **agrees** with a progress indicator as recommended in the Commission's report (p.41), "a plan to partner with iwi/Māori and local government to implement emissions reducing pathways and actions that:

- Gives effect to the He Ara Waiora tikanga.
- Includes pathways and actions (which could include regional outcomes and actions frameworks) to remove barriers to participation for iwi/Māori.
- Enables iwi/Māori to exercise rangatiratanga and kaitiakitanga.
- Promotes equal access to new information, technology, employment and enterprise opportunities."

However, while OraTaiao supports the above strategy, as it's fundamentally sound from a rangatiratanga kaitiakitanga perspective, the Commission needs to strengthen this recommendation by advising how it will be funded/resourced, operationalised, and monitored for accountability, efficacy and impact.

8. Central and local government working in partnership

Consultation question 8. Do you support enabling recommendation 4 on central and local government working in partnership? Is there anything we should change and why?

OraTaiao **supports** the principles of enabling recommendation 4. We support the integration between central and local government and commend the development of clear progress indicators. However, the Commission's advice could be strengthened.

We recommend the Commission's advice (recommendation 4) be strengthened by **specifically including District Health Boards** (DHBs) within the wording of the recommendations, with particular attention to upcoming plans for DHB reform. The Commission should ensure that this reform process incorporates our climate change response as a core principle.

9. Ensuring inclusive and effective consultation, engagement and public participation

Consultation question 9. Do you support enabling recommendation 5 on establishing processes for incorporating the views of all New Zealanders? Is there anything we should change and why?

OraTaiao **partially supports** enabling recommendation 5. We commend the Commission for highlighting the risks of "over consultation" (p.43), as there is a fine balance to be found between proper, informed consultation and risks of delaying essential action.

We recommend strengthening the enabling recommendation by clearly referring to the development of measures to specifically target marginalised groups such as iwi/Māori, disabled people and inhabitants of rural areas. We recommend wording that directs local and central government consultation processes to develop processes to specifically avoid prioritising industry and corporate groups with existing conflicts of interest, as has happened with consultation on tobacco regulation as well as with fossil fuel companies[39,40].

Warner et al. (pp. 36-38) outline a clear mechanism to improve consultation while building trust between the government and citizens, focusing on the distinct effects of climate change on indigenous populations and recognising "the role and protect(-ing) the use of traditional knowledge in climate change initiatives."

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10-11. Locking in net zero

Consultation question 10. Do you support our approach to focus on decarbonising sources of long-lived gas emissions where possible? Is there anything we should change and why?

OraTaiao **supports** the focus on decarbonising the sources of long-lived gas emissions. However, we recommend that the speed of decarbonisation be increased, and that the methods of decarbonisation specifically aim for the **maximum health co-benefits that are achievable.**

We commend the Commission for expressly stating that our current trajectory does not put Aotearoa on course for meeting our 2030 and 2050 obligations. We **strongly agree with the focus on decarbonisation at all times** when feasible rather than offsetting emissions. We agree that "we need to avoid pushing the burden to future generations,"- however as outlined in our answer to *Big Question 2*, we do not believe that the recommendations within the draft advice go nearly far enough in striking a fair intergenerational balance.

Consultation question 11. Do you support our approach to focus on growing new native forests to create a long-lived source of carbon removals? Is there anything we should change and why?

OraTaiao **fully supports** the focus on growing new native forests for the ecological and health co-benefits that this will achieve[41,42,43], including mental and spiritual health[44].

We recommend including **all native habitats** in any clauses recommending cessation of deforestation or rehabilitation of native forests.

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12. Our path to 2035

Consultation question 12. Do you support the overall path that we have proposed to meet the first three budgets? Is there anything we should change and why?

OraTaiao **does not support** the overall path that is proposed to meet the first three budgets as they are not strong enough. While we do acknowledge the benefits that will accrue from the proposals already made, our advice should be looked on **as additive to and strengthening of the proposals already made**, rather than as an alternative. We recommend, as outlined above, more ambitious budgets and an additional series of proposals to achieve these.

In particular, we draw attention to Box 3.1 in the draft recommendations (p.70) where extra measures are offered as ways to meet the budget requirements if the uptake in electric vehicles is not as fast as expected, or behaviour change is less than planned. The Commission recognises that these opportunities exist, **and they should be taken as early as possible**, rather than simply being a fall-back option. The 'risk' of exceeding our budget requirements should be looked on as a bonus, not as something to avoid.

We strongly recommend the following additional measures as ways of improving our path to meeting and exceeding our carbon budgets, and of **optimising health co-benefits that can be made.**

- More ambitious targets for active and public transport increases, and mode-share shift from private motor vehicles. See OraTaiao's more detailed recommendations in response to *Consultation question 14 Transport*.
- Much more rapid improvement in energy efficiency in buildings.
- Earlier phase out of coal for process heat and space heating, an end-date for all coal mining, and a more rapid of gas-fired boilers.
- As early as possible introduction of agriculture into the Emissions Trading Scheme, a rapid phasing out of industrial credits, and a sinking stock ceiling to ensure herd size reduction. See our response to *Consultation question 16 Agriculture*.
- More rapid reductions in synthetic nitrogen fertiliser.
- Strong recommendations for adoption of climate friendly diets. See our response to *Consultation question 16 Agriculture*.
- More rapid phase out of F-gases in healthcare, and an urgent incorporation of climate change into government procurement processes, including those in healthcare.

We commend the Commission including international aviation and shipping in the stress analysis of the budgets (section 3.4, p.49), but would recommend including

these within the formal budgets. This will safe-proof the budgets, and allow Aotearoa to take an international lead in advocating for essential reductions in these sectors.

13. An equitable, inclusive and well-planned climate transition

Consultation question 13. Do you support the package of recommendations and actions we have proposed to increase the likelihood of an equitable, inclusive and well-planned climate transition? Is there anything we should change, and why?

OraTaiao agrees there is a need to ensure a just and equitable transition to a low emissions economy and **partially supports** the package of recommendations to achieve this. However, the Commission's advice needs to also make recommendations that would reduce **present day health inequities, as well as ensuring** "certain individuals and sectors do not unfairly bear the cost burden of the climate transition" (p.101)**.**

We support the Commission's recommendation that the Government develop an "Equitable Transitions Strategy that is linked to the Government's Economic Plan" (p.102). However, **the Commission needs to recommend health be factored into: assessing the distributional impacts of climate change policy decisions; and also the design of policy to minimise or mitigate the negative impacts.**

Developing climate policy to reduce health inequities

Certain climate policies have a far greater chance of reducing health equities while others could increase health inequities and this applies to transport, housing and food policies. For example, increasing active and public transport could reduce harmful air pollution and enable access to essential services for people unable to afford to buy and run a car. Also, a greater focus on better insulated homes with cleaner heating has a huge potential to improve health equity while making some emission reductions.

OraTaiao agrees with the Commission's recommendation to, "Improve the evidence base and approach for factoring in co-benefits into climate policy, planning and investment decisions, including to health, transport accessibility, the environment" (p.103). However, we must avoid allowing this to contribute to delaying essential action. The Commission can draw on the existing evidence base and public health expertise to realise opportunities now rather than delay when actions could become harder or more costly.

The burden of disease tends to affect those already most disadvantaged and there are known climate policies which can not only reduce emissions but also reduce these health inequities. See an example below.

Respiratory disease, housing and fossil fuel pollution

Rates of respiratory disease are high across New Zealand – they are the third most common cause of death in NZ[45], accounting for one in eight hospital stays – but **people living in the most deprived households are inequitably affected, and rates are higher for Pacific and Māori than for other ethnic groups**[46].

More than half of the people admitted to hospital with a poverty-related condition are there because of a respiratory problem such as asthma, bronchiolitis, acute infection or pneumonia. People living in the most deprived households are admitted to hospital for respiratory illness over three times more often than people from the wealthiest areas. Across all age groups, hospitalisation rates are much higher for Pacific peoples (2.6 times higher) and Māori (2.1 times higher) than for other ethnic groups. Respiratory hospitalisation rates were highest for children aged under 15 years and adults aged over 65 years[47].

We know that poor quality housing (overcrowded, cold, damp, mouldy, and either unheated or heated with unhealthy fuels[48]) and air pollution (outdoor and indoor) contribute to poor health. We also know that in order to reduce greenhouse gas emissions we need to conserve energy (through measures such as insulating houses) and to move to clean heating methods that do not involve burning fossil fuels (a major source of harmful air pollution).

A recent study estimated that fossil fuel air pollution was responsible for one in five deaths worldwide: This was a result of breathing in air containing particles from burning fuels like coal, petrol, and diesel, which aggravate respiratory conditions like asthma and can lead to lung cancer, coronary heart disease, strokes, and early death[49]. Industries also contribute to these levels[50]. The biggest single source of particulate pollution in Aotearoa comes from residential burners, with a large contribution from road transport, according to the 2018 Ministry for the Environment air quality report[51].

BRANZ Housing Conditions Survey (2015) indicated that nearly half of dwellings were not heated in winter, just one third of the houses regularly heated, half of the children's bedrooms not heated at all and there was visible mould in half of houses surveyed. The poor state of its housing has brought New Zealand among the OECD countries with the lowest space heating intensity[52].

Housing policies need to be improved to ensure that lower socioeconomic residents (including many tenants) can afford good insulation and safe and clean heating. The present heating standards are insufficient[53] . A recent study on environmental monitoring and thermal performance of New Zealand rental housing has indicated that the thermal performance of the dwelling was poor, such that the occupants could be expected to be at risk of adverse health outcomes[54].

Housing policies need to adopt better efficient housing to reduce seasonal electricity demand, enable greater renewable supply and keep residents warm and healthy. A report (2019) from University of Otago has given some insights into the importance of such ultra efficient houses and stated that a slower implementation would significantly delay the benefits. He states that there is a need for cross-sector policies that mandate energy-efficient residential buildings based on their wide-ranging health, efficiency and energy affordability benefits[55].

Communities inequitably affected by climate change

OraTaiao **agrees** with the Commission's advice to, "identify communities and regions that may be particularly affected by climate change and the transition to a low emissions society, and initiating processes for localised transition planning in these areas. This would require the Government to work in partnership with local government and regional economic development agencies, iwi/Māori, local communities, businesses, civil society groups and stakeholders."

Māori

For Māori, climate change means displacement and dispossession from lands, heritage and resources, disruption of family relationships; loss of cultural identity and knowledge, increased poverty and marginalisation, worse health, and effects on their spiritual relationship with the natural environment[56].

There is a need to revisit strategies that protect the areas that are vulnerable to increased flood risk and preserve Māori sacred sites that are exposed and positioned at erosion-prone coastal lands [57].

The Commission recommends, "Some low-income households, older people, people with disabilities, Māori and Pasifika households or households that live in remote areas could struggle to access lower emissions technologies...Targeted assistance will needed to ensure these groups can access new technologies and are not

disproportionately affected by the climate transition"(p. 81). OraTaiao agrees but with qualifications to Māori being reduced to the equity argument again.

OraTaiao also agrees with the Commission's recommendation, "Education and training developed by Māori for Māori will be important for reducing existing inequities and in ensuring an equitable transition" (p.98). However, it requires the concordant commitment to resource and fund this kaupapa. The report also mentions the need for re-training or learning new skills for Māori impacted by industry closures due to climate change.

OraTaiao agrees with the advice, "Iwi/Māori need to be able to exercise their rangatiratanga and mana motuhake to make decisions on how to use or develop their land to meet their collective and culturally driven aspirations and needs" (p.98).

Access to reliable information and quality advice is a key enabler to enhance participation for Māori collectives and ensure equitable health and wellbeing, mauri and/or hauora outcomes. Establishing a Māori emissions profile will improve the ability for iwi/Māori-collectives to manage and monitor emissions within their takiwā in the context of their broader social, cultural, economic and environmental objectives. (p.97) (agreed). However, agencies that support the justification for allocation of resources and funding, such as Tatauranga Aotearoa/the Department of Statistics, will be essential to this, and must be empowered to work in partnership with Māori (iwi, hapū, Māori collectives, trusts/incorporations, asset holding companies etc.) and must hold the cultural competency in these agencies to work effectively in a tikanga-led context at all levels.

Disabled communities

Climate change negatively and disproportionately affects disabled people[58]. As a group already vulnerable due to active and passive oppression by societal systems, disabled communities and individuals need to be supported and resourced to achieve an equitable outcome. The Commission should also acknowledge and utilise the leadership and innovation that exists within the disabled community.

Mental health

From a mental health viewpoint, extreme climatic events pose immediate risks associated that can have negative effects on wellbeing.

The increasing levels of greenhouse gases[59] have led to an extreme temperature that has reportedly been associated with increased incidences of aggressive behaviour, violence and suicide. Individuals with mental illness[60] are especially vulnerable to high temperatures (e.g. 28 °C) or heat waves that triple the risk of death, potentially through not drinking enough fluids, getting access to cool places, or recognising symptoms of heat exposure[61].

Clinical psychologists in Aotearoa are reporting increasing levels of emotional distress in clients that is described in the international literature as ecoanxiety, eco-paralysis, climate despair or solastalgia - a form of existential distress, commonly related to environmental change. However, psychological research also indicates that people are finding positive ways to cope and psychologists are beginning to understand many of the adaptive measures that can help people to cope with climate change. These include individual as well as community-based interventions that will enable capacity building and, among many other options, environmental preservation programmes that can provide "a sense of stewardship and personal investment" that can mitigate the potentially negative psychological effects[62]. The Commission should be drawing the Government's attention to the need to provide opportunities for people to participate in climate action programmes that will have dual benefits, enhanced environmental outcomes and improved community wellbeing.

For New Zealanders, especially for Māori communities, their natural environments is the heart of their identity. Threatened coastal areas, disturbed forests, encroachment into cherished lands and even routine exposure to climate change news can cause ongoing grief and anxiety and further escalate risk perceptions, pessimism, helplessness and guilt[63]. The Commission's future actions must consider these mental health effects when devising strategies[64],[65].

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14. Transport

Consultation question 14. Do you support the package of recommendations and actions for the transport sector? Is there anything we should change and why?

The Commission's draft advice acknowledges the significant and growing greenhouse gas emissions in the transport sector in New Zealand. We **agree with some of the actions** but have concerns that the emphasis on private transport perpetuate the status quo dominance of private vehicle ownership. We require a transformational shift in transport to active modes, electric public transport, and freight from road to sea and rail. This will not only reduce greenhouse gas emissions but also enhance people's health and wellbeing.

New Zealanders pay a high price for polluting our environment, and for our lack of safe and accessible active and public transport infrastructure. Physical inactivity is contributing and a diet high in animal fat contributes to high rates of cardiovascular disease and cancer (along with diets high in animal fat). Our infrastructure discourages active transport and most people cannot share in the health benefits of cycling or walking to work. Public transport is crippled from decades of underinvestment leading to an overreliance on private vehicle commuting, the least healthy form of transport. More cars means more emissions, air pollution and noise pollution, and high costs for their owners. All of these contribute to inequity by disproportionately harming people on lower incomes and Māori.

A recent report published in The Lancet Planetary Health shows that "addressing climate change and achieving the Paris Agreement through strengthened Nationally Determined Contributions (NDCs) commitments to limit greenhouse gas emissions and the future risks of climate change will benefit health not only in the future but also in the present day"[1]. People's health will benefit through more active transport, improved diet and reduced air pollution. Limiting global heating within 1.5°C is much more urgent than previously thought. It is not only a climate emergency; it is a public health priority.

Recommendations

Recommendation 1

All central and local government transport planning must urgently calculate and minimise climate and health harms. This means calculating and reporting carbon emissions from proposed transport infrastructure builds and policy changes, prior to decisions. The high health costs from sedentary transport dependence, air pollution and other health harms, must be similarly calculated - using human life values currently limited to safety calculations.

Recommendation 2

Transport agencies must work in genuine well-resourced te Tiriti partnership all transport planning and policies across Aotearoa, ensure Māori transport values and needs, and equitable access.

Recommendation 3

Reclassify Necessary action 2 “Develop an integrated national transport network to reduce travel by private vehicles and increase walking, cycling, low emissions public and shared transport” as a time critical action.

Recommendation 4

Reorientate the “National Land Transport Fund” to reflect a focus on active and public transport. In particular a focus should be on access to public and active transport for children travelling to and from school.

Recommendation 5

Strengthen targets for public and active transport, at a minimum a 25 percent for walking, 15 percent for cycling and 15 percent for public transport by 2030 based on public health research.

Recommendation 6

Ensure transport accessibility for people living with disabilities by working in partnership with representative organisations to set out urgent priorities in all transport planning and policies across Aotearoa.

Recommendation 7

Mode shift to cycling needs to be supported by incentivising the rapidly accelerating uptake of electric bikes, and through safe cycling infrastructure such as separated cycling lanes and quiet streets. Wherever there is a footpath there should also be cycle infrastructure.

Recommendation 8
Electrified public transport needs major investment as a public health good and should be free for under 25s, with reduced fares for other age groups. There should be enhanced quality and access to public transport.

Recommendation 9
Private vehicle use should be curtailed through measures such as increased parking charges, zero emissions zones, widespread adoption of "traffic calming" measures and reduced speed limits. Private vehicles should be regulated as a health hazard including the advertising of high emissions vehicles such as fossil fuel powered SUVs.

Recommendation 10
All light vehicles entering the country should be zero emissions by 2030 (only battery electric vehicles). We support a feebate scheme to support this transition. Policy advice on charging infrastructure should be strengthened to allow comprehensive networked access to urban and rural areas to support widespread uptake of affordable lower range electric vehicles.

Recommendation 11
A key priority must be the use of active transport for children travelling to school.

Recommendation 12
EV share/rental schemes with governmental support so that all New Zealanders, rural and urban, can access an EV at an affordable hourly rate. Vehicle share schemes can act as an amplifier and enabler of increased public and active transport usage.

Recommendation 13
Increased targets for sea and rail freight to reduce the damage to health caused by air, water and noise pollution associated with road freight as well as injury and death through motor vehicle accidents.

Active transport

Health benefits of active transport

Research shows sizable health benefits from active transport commuting [2,3]. In a study of over a quarter of a million participants in the United Kingdom, Celis-Morales et al. showed that, "cycle commuting was associated with a lower risk of cardiovascular

disease, cancer, and all cause mortality. Walking commuting was associated with a lower risk of cardiovascular disease independent of major measured confounding factors" [4,5]. Similar benefits have been reported from China [6] and Sweden [7]. A recent meta-analysis showed that active transport was associated with a lower rate of cardiovascular disease and death; cycling itself was associated with a 25 percent reduction in cancer mortality and a 24 percent reduction in all cause mortality [4]. Another meta-analysis concluded that "active commuting decreases mainly all-cause and cardiovascular mortality, with a dose–response relationship" [8]. In addition to overall well-being, there is also evidence that active transport improves job satisfaction and performance, reflecting an additional potential economic benefit.

In Aotearoa, Te Ara Mua Future Streets retrofitted a mainly Pacific and Māori community for safer and easier walking and cycling [9]. Future Streets installed concrete barriers along cycle lanes, instituted traffic calming and made walking safer, easier and more pleasant for residents. Several Sustainable Development Goals were met through the Future Streets suburban changes including health and wellbeing, gender equality and climate action [10].

Cycling

The COVID-19 lockdown saw an increase in child cyclists as shown by a rise in minor cycling injuries [11] and this was accompanied by fall in serious injuries from car crashes [12]. Other parts of the world that suffered longer lockdowns reported a boom in the number of cyclists. Paris constructed temporary cycle lanes during the COVID-19 lockdowns and found that six out of ten people using these lanes were new to cycling [13]. Pop-up cycle lane programs in European cities during COVID-19 led to a 7 percent increase in city-wide cycling [14]. Men tend to cycle more than women [15] but in Paris the pop-up cycle lanes attracted more women than men [13]. This shows that safe, separated cycling infrastructure, along with access to E-bikes, reduces gender inequality [16].

In Aotearoa it is a challenge to find a connected, safe cycling network but Auckland's Northwest path is one example. Over the last four years, as the path improved, usage doubled as shown graphically in this article [17], Matt Lowrie wrote that "a climate appropriate response would be to see a massive and rapid roll out of a safe network. That would open up the opportunity to cycle to a huge amount more people. What's more, this is something that could be done in pretty much every town in the country" [17]. Macmillan et al. modelled which cycle lane policy would yield the best benefit-cost ratio and found that "the most effective approach would involve physical segregation on arterial roads (with intersection treatments) and low speed, bicycle-friendly local streets"; and this would be cost effective: "'These changes would bring large benefits to public health over the coming decades, in the **tens of dollars for every dollar spent on infrastructure**" [18].

Today in Amsterdam, 38 percent of all trips are made by bike but this was not always the case [19]. Holland in the 1960s saw the car as the transport of the future. As cars and roading took over, cycling was dying out while road traffic injuries skyrocketed. Following protests and collective action, a massive investment in cycle path infrastructure began that led to Amsterdam becoming the "cycling capital of the world" [19]. Aotearoa could follow this example.

The United Kingdom recently published their vision for cycling and walking which incorporated four themes:

1. Better streets for cycling and people
2. Cycling at the heart of decision-making
3. Empowering and encouraging Local Authorities
4. Enabling people to cycle and protecting them when they do [20]

Streets in Aotearoa are not safe enough or easy enough for cycling or walking [21]. Cyclists are vulnerable to injury and mortality from road crashes [22]. Cycling risks need to be properly analysed [23] and urgently minimised by appropriate infrastructure.

E-bikes will be an important part of the active transport strategy. E-bikes lower barriers to cycling, allow longer commutes, and would benefit suburban and rural settings the most given the right infrastructure [24]. E-bikes could help low income households that are the most affected by the cost of running a car [24,25] but safety and connectivity are key in making cycling a usable option for commuters [26].

The Commission's report recommends "encouraging" walking, cycling etc. (Table 3.1 p. 55). **OraTaiao recommends building infrastructure that will empower New Zealanders to cycle.** People do not necessarily need to be encouraged to cycle, they need to be enabled. To do this they need a nationwide network of cycle lanes physically separated from roads and footpaths. Wherever there is a footpath there must be a safe cycle lane too.

We **support** the Commission's advice to redesign cities which is in line with a recent systematic review showing that there was "a consistent positive effect of walkability components, provision of quality parks and playgrounds, and installation of or improvements in active transport infrastructure on active transport, physical activity, and visits or use of settings" [27].

The 95 percent increase in cycling proposed in the Commission's report (ch. 3 p. 59) would mean a mode share of transport of only 4 percent by 2030. We think the Commission should advise a cycling target of at least 20 – 25 percent which would be consistent with the cycling mode share already enjoyed by various European cities [28].

Public transport

Travel by public transport is good for health. A large study in the UK showed that, compared to commuting by car, rail commuters had a 10 percent lower rate of all-cause mortality, a 21 percent decreased rate of cardiovascular disease mortality, and a 12 percent reduced rate of cancer [2]. Although healthier than car travel, public transport does not seem to help people increase their physical activity [15] thus active transport should be a preferred option for those who are abled.

The relationship between public transport, active transport and car use is complex meaning that changes to the transport system cannot happen in isolation. A study in Rotterdam showed that the public transport system reduces road traffic congestion but also cycling usage [29]. This shows the need to disincentivise cars and incentivise (through accessible and safe infrastructure) cycling when improving public transport in order to see increases in both active and public transport. As one review of the co-benefits of public transport put it, '"combined interventions have better co-benefit outcomes than single intervention scenarios" [30]. Measures to disincentivise cars should include increased parking charges, zero emissions zones, widespread adoption of "traffic calming" measures and reduced speed limits. Private vehicles should be regulated as a health hazard including the advertising of high emissions vehicles such as fossil fuel powered SUVs.

Investment in road infrastructure undermines public transport quality and patronage by making car use more attractive, leading to more cars, leading to more congestion, and pressure to build yet more roads in a reinforcing loop [31].

The proposed 120 percent increase in public transport would mean a mode share of only 13-15 percent by 2030 which is inadequate. We recommend a much more ambitious target for public transport use by 2030. Micromobility can complement public transport when active transport infrastructure is available to commuters as at Meadowbank train station in Figure 1 below.

Electric Vehicles

New Zealand has the highest car ownership in the OECD [32]. Cars harm people's health [33] through road traffic injuries [22,34], noise pollution [35–38] and air pollution [39]. Commuting by car contributes to cardiovascular disease, diabetes, cancer, and lowers life expectancy [5].

As Dr Coffey of Orataiao said,"New Zealanders are overly dependent on cars and there is a lack of accessible and affordable public transport" [21].

EVs would not be expected to reduce road trauma whereas reduced speed limits and a shift to active and public transport would reduce major injury and deaths from road traffic crashes.

Transitioning to electric vehicles (EV) will partially mitigate air pollution but non-exhaust emissions from brakes and tyres will continue to pollute the environment [40].

The charging strategy for EVs should include work and overnight public charging, fast highway charging, and access to supplementary vehicles [41].The EV network must include small towns and rural Aotearoa to avoid disadvantaging people who live in more remote parts of the country, acknowledging that car use will likely remain at higher levels in rural areas than urban areas. Likewise in towns and cities there will be some people whole will still need to depend on car travel, for instance some disabled people.

The current focus on electrification of the vehicle fleet without a significant mode shift to active and public transport does not adequately factor in the significant evidence based co-benefits of such a shift:

1. More equitable access to transport
2. Reduced air pollution
3. Improved population health through increased exercise
4. Improved liveability of towns and cities due to reduced vehicle movements

As Woodcock et al. explained, "policies to increase the acceptability, appeal, and safety of active urban travel, and discourage travel in private motor vehicles would provide larger health benefits than would policies that focus solely on lower-emission motor vehicles" [42].

Support elimination of the internal combustion engine

We agree in principle that electrification should replace the internal combustion engine (ES. p. 15). We think the timeframe is unambitious and that by 14 years from now the majority of imported cars would be electric even without policy incentives. Phasing out new internal combustion engines should be brought forward to budget 2 (Table 3.1 p. 55). Waiting until budget 2 shows a lack of urgency.

The real questions are: how to reduce car usage; how to manage road vehicles as a health hazard; and how to change the transport system so that road transport is no longer subsidised by society at the expense of active and public transport investment.

Delayed action is false-economy. In an analysis of carbon prices Daniel et al. showed that a higher initial carbon price would make the total cost of emissions cuts cheaper; conversely, they showed large costs associated with delays in pricing CO_2 emissions [43]. This suggests that Aotearoa should "go hard" now to avoid big financial losses later. An early adopter approach would also help confirm our place as a world leader in ecological human development.

We support a feebate scheme, subsidised EV car share schemes for urban and rural communities and the rapid rollout of a comprehensive network of charging infrastructure as the best policy tools to support electrification of the light vehicle fleet.

Hybrid cars

Emissions from hybrid cars are lower than fully internal combustion engine cars; however, real world emissions from hybrids are far higher than official tests show [44]. One study showed hybrids emit 117 g CO_2/km.

The consultation document recommends "emissions target for light vehicles new to Aotearoa of 105 grams CO_2 per kilometre by 2028" (chapter 6 p.109). Using real-world testing, this would preclude hybrid vehicles.

A transition through hybrid vehicles would likely inhibit electric vehicle charging infrastructure, lead to persistence of hydrocarbon infrastructure (petrol stations), and end up deferring the benefits and being more costly in the long run.

Children

A key priority must be the use of active transport for children travelling to school. The change from walking, cycling or using the bus to get to school to being driven to school has occurred very recently and the damage from this change includes: reduced exercise by children, increased traffic and pollution around schools, and the risk to children from motor vehicle injuries around schools.

In a University of Otago report entitled 'Turning the tide—from cars to active transport' Mandic et al. recommend funding a universal, interconnected active transport network, ensuring safe routes to school, appropriate infrastructure, and drop-off zones located a reasonable walking distance from the school [45,46].

Equity

According to Tatauranga Aotearoa/Stats NZ 2018 only 2 percent of New Zealanders cycle to work while three quarters get to work in a motor vehicle; only 6-7 percent use some form of public transport [47]. Women use cycling less than men in Aotearoa [48] but this inequality is reduced by access to safe cycling infrastructure as discussed above.

Raerino et al. explored Māori perspectives on the link between transport and wellbeing and found that "in Auckland, where transport systems have been dominated by heavy investment in road infrastructure, the implication is that restricting access to travel by car, without providing alternative means of transport, is likely to impact negatively on Māori wellbeing" [49]. An equitable society would be one in which active and public transport were available to everybody and car ownership was a choice, not a requirement to get to work.

We agree with the Commission's summary (p.85) that, "access to transport is a particular issue for some Māori, iwi Māori wellbeing, hauora and health outcomes. Transport is hugely important for Māori to connect to their whānau, haukāinga, and tūrangawaewae...(transport is a) key enabler for the haukāinga to collect resources and provide services to the marae". We recommend this specifically be addressed and strengthened.

EVs are expensive but their cost should decrease. At present people who buy an EV are financially penalised for trying to help the planet but in general they can afford it. There is scope to incentivise EV ownership for those who cannot afford it. A recent study showed that EVs can save their users thousands of dollars in fuel costs compared to petrol [41].

An equitable country would mean that infrastructure and transport services ensure everyone has access to safe and reliable means of travel, for example elderly, disabled people or pregnant women and children.

Economics and modelling

A predominantly active and public transport system for New Zealanders will not only benefit our health and wellbeing; it will bring huge cost benefits [28,50,51] .

Dr Alex Macmillan showed that "the public health costs and benefits are dominated by the cost of injuries and the all-cause mortality benefits of cycling physical activity. Compared with these, infrastructure costs and other benefits are small. Overall savings range from the hundreds of millions of NZ dollars (RCN) to the tens of billions of NZ dollars" [52].

Wolkinger et al. showed that "considering economic co-benefits of climate change mitigation policies in urban mobility can be put forward as a forceful argument for policy makers to take action" [53].

Budget allocation

In the 2019-2020 year the NZ Transport Agency spent 23 percent of its transport-related expenditure on public transport and 2.1 percent on walking and cycling; 74 percent, almost $4 billion, was spent on roads [54].

From a health, environmental and economic perspective, we have an upside down transport budget which needs transformation to allocate the greatest share to the mode of transport that is of greatest good to New Zealanders, i.e., active transport first and public transport second. These are also the most neglected areas making them in even greater need of a budget boost. This would also align with the human development approach advocated by the United Nations Development Programme[55].

We know that building more motorways only increases car use which increases traffic congestion and defeats its purpose [56]. It is interesting to speculate on why roading has the lion's share of the budget and whether this could be due to the influence of lobby groups in the manufacturing and transport sectors.

Contemporary economic models

Turning transport expenditure around will require a new way of looking at economics. For example, *Doughnut Economics* by Kate Raworth of Oxford University [57,58,59] could be used as an overriding framework and the *Mauri Model* by Te Kipa Kepa Morgan of the University of Auckland [60] to aid decision making. Modelling should take into account interdependencies between sectors, in particular the impact of policy interventions on public health [53,61]. Contemporary indices of human wellbeing should be incorporated into economic decision making. Examples of such include the United Nations Development Programme Human Development Index [62], the Planetary Pressure-Adjusted Human Development Index [62,63], and the OECD Better Health Index [64].

We agree with Dr Macmillan that, "the National Land Transport Fund requires urgent reorientation. Building new roads should be replaced with major ongoing national investments in public and active transport infrastructure and services, including rapid inter-city zero carbon links" [65].

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15. Heat, industry and power

Consultation question 15. Do you support the package of recommendations and actions for the heat, industry and power sectors? Is there anything we should change and why?

Air pollution from fossil fuels has a large impact on human health so we strongly recommend decarbonisation in the hating, industry and power sectors. For example, recent research estimating that exposure to particulate matter from fossil fuel emissions accounted for nearly one in five global deaths[66].

Recommendation 1

More rapid removal of coal from the NZ energy system with a transition to non-fossil fuel-based forms of energy including replacing industrial coal boilers.

Recommendation 2

Immediate cessation of new gas burner installation.

Recommendation 3

Warmer and better insulated homes: NZ housing policies need to keep its residents warm and healthy through.:

- adopting more efficient, well-insulated housing which will lead to warmer homes and reduce seasonal electricity demand.
- Switch away from solid fuel heating in houses to electricity, and enable greater renewable supply.

Recommendation 4

New commercial buildings (including hospitals) need to be built to a high standard that minimises the need for extra heating and ventilation.

Recommendation 5

Phasing out of coal for food processing (mainly in the dairy sector) is not scheduled to occur until 2035. This should be revised down to 2027, at the latest.

Recommendation 6

Rapid removal of Industrial Free Allocation from the Emission Trading Scheme.

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16. Agriculture

Consultation question 16. Do you support the package of recommendations and actions for the agriculture sector? Is there anything we should change and why?

We **support some of the actions** but the Commission's advice to the Government **must be more transformative**: We have the opportunity now to establish a food and agricultural system that reduces greenhouse gas emissions **and** is equitable, improves health, and is based in te Tiriti.

Agriculture accounts for nearly half of New Zealand's overall greenhouse gas emissions in Aotearoa, according to the latest figures in the 2020 Greenhouse Gas Inventory[67]. Life-cycle Analysis research[68] shows that the biggest area for emission reduction across the life-cycle of the food system in Aotearoa is within the farming and processing stage for ruminant-based products (e.g. beef and lamb).

The targets proposed by the Commission are too weak, and in order to optimise health outcomes **significantly more attention must be paid to the whole food system** including food production and **diet**. Global food production is threatening local ecosystems and pushing the limits of the Earth's natural systems, and at the same time **unhealthy diets are a major contributor to increasing rates of non-communicable-diseases** including heart disease, diabetes and cancers[69].

The EAT-Lancet Commission's report[70] quantitatively describes a universal healthy reference diet, based on an increase in consumption of foods such as vegetables, fruits, whole grains, legumes, and nuts, and a decrease in consumption of foods like red meat, sugar, and refined grains that would provide major health benefits, and also increase the likelihood of attainment of the Sustainable Development Goals. This is set against the backdrop of defined scientific boundaries that would ensure a safe operating space within Earth systems towards sustaining a healthy planet.

Changes to agriculture

All industries are being asked to make changes, and this must include agriculture. We need more ambitious action than proposed by the Commission including through: **Larger reductions in biogenic agricultural emissions through necessary land use changes** and by diversifying our food system to include plant-based sources, instead of overlying on increasing on-farm efficiency and technologies. The process of

diversifying towards plant-based foods, improving technologies and increasing on-farm efficiencies must be actioned alongside a just transition for farmers.

Agriculture is the largest contributing sector (48 percent) to greenhouse gas emissions in Aotearoa, according to the 2018 Greenhouse Gas Inventory[71]. The share of environmental damage attributable to the agricultural industry among OECD countries[72] from 2000-2010 was the highest in Aotearoa for nitrogen balance and contribution of greenhouse gas emissions. Life-cycle Analysis research[73] shows that the biggest potential area for emissions reductions across the life-cycle of the food system in Aotearoa is within the farming and processing stage for ruminant-based products (e.g. beef and lamb). A shift towards more plant-based diets has been modelled[74] to provide $14-20 billion in health savings across the lifetime of the current population.

Our advice will be focus on the options for reducing emissions and be informed by: (1) our obligations under the Zero Carbon Act and Paris Agreement and (2) the Sustainable Health Diet guiding principles:

Recommendation 1

We recommend cuts in biogenic methane well in excess of what is planned in the draft advice. We Should target the 48 percent reduction by 2050 as a floor, not as a roof.

Recommendation 2

A defined reduction in national herd numbers is needed to ensure the “expected” reduction and more happens by 2030. This can be achieved through:

- maximum stocking numbers.
- incorporation of Agriculture into the Emissions Trading Scheme. Legislation is already present to allow this[75], and it needs to be coupled with a rapid, clearly signposted reduction to zero of free credits in the Emissions Trading Scheme.
- a ban on new dairy conversions and support to re-convert existing farms.

Recommendation 3

More ambitious reductions in dairy and sheep and beef animal numbers (advice is: each reduced by around 15 percent from 2018 levels by 2030. This compares with an 8-10 percent reduction projected under current policies.)

Recommendation 4

Urgent reductions in synthetic nitrogen fertilisers, acknowledging the increasing body of evidence linking nitrate groundwater pollution with colorectal cancer causation[76].

Recommendation 5

Action is needed to **diversify the food system towards plant-based crops and food sources** that would have the most benefit in reducing biogenic methane emissions and improving health outcomes. The Commission needs to recommend a broader focus on what sources of food we are growing in a sustainable and te Tiriti based food system is needed. This transition is recognised by a Ministry for Primary Industries commissioned report[77] emphasising that the overreliance of protein production in Aotearoa from dairy and meat requires a change. This includes not only the food consumed and produced in Aotearoa, but also what is exported to other countries.

Co-benefits are found to health and the environment when diversifying our food system towards plant-based foods. This is especially important given the health inequities relating to unsustainable diets that disproportionately affect structurally oppressed groups and are in violation of the articles of Te Tiriti o Waitangi, especially article 3 of Oritetanga[78]. To meet the targets outlined in the Zero Carbon Act and meet our obligations as signatories of the Paris Agreement, swift action is needed to transition to a sustainable food system as outlined by the World Health Organisation (WHO) and Food and Agriculture Organisation of the United Nations (FAO) guiding principles of sustainable healthy diets[79].

Recommendation 6

Increase the focus on regenerative and ecological farming in research and implementation that would have numerous benefits such as ensuring land quality is improved, improving food security and healthier soil among others.

Recommendation 7

We support making farm management more efficient as a tool to use, but this needs to have buy-in and support from Farmers to enact such practices. We also think that this is only one policy option and a broader approach to reducing biogenic methane emissions is required.

Recommendation 8

Concerns about water quality with a shift from dairy to horticulture should not be used to discourage these conversions, because Animal agriculture is already a significant source of air, soil, and water pollution[80].

Recommendation 9

We support enacting new technologies such as methane vaccines to help reduce emissions. The Commission should recommend that the Government be in charge of footing the costs associated with implementing these technologies, to lower the (already present) financial burden on farmers and allow this to not be a barrier to implementation.

Recommendation 10

Carbon Sequestering in Soil:
The Commission has reported that "there is currently no robust evidence of (the) long-term effectiveness in Aotearoa" of carbon sequestration in soil. We recommend that commission should direct that the Government provide funds for Research & Development into assessing the potential of carbon sequestering in soil in Aotearoa.

Support for farmers

The Commission's advice needs to be more explicit on how NZ is going to support farmers to make the needed changes. Support/incentives/disincentives are needed for practices to change, and given the changes that are required to the agricultural sector, the capacity and wellbeing of farmers needs to be centred throughout the transition.

Recommendation 1

Farmers themselves must have buy-in to any support system development.

Recommendation 2

Farmer wellbeing must also be centred given the need to improve the mental health of our farmers in Aotearoa[81,82].

Recommendation 3

We recommend the Government develop a strategy that outlines how farmers will be supported towards a zero-carbon future.

Promote and centre food sovereignty of Māori as Tangata Whenua

The livelihoods of Māori are strongly linked to land use[83], and we support the Commission's recommendations around **partnership with Māori** but this needs to include **enabling food sovereignty for Māori as Tangata Whenua which is critical for enabling a just transition**. Such a system would ensure that Māori benefit equitably from activities relating to the production and consumption of healthy and sustainable food.

Recommendation 1

Extend the Māori Agribusiness fund[84] beyond 2023 and ensure that Māori primary industries are not unequally burdened by transitions to a lower-emissions food economy.

Recommendation 2

Funding to support developments in Māori agribusiness and regenerative farming that is iwi led will support a te Tiriti partnership.

Recommendation 3

Promote food sovereignty initiatives by encouraging development of local food initiatives, and strengthening the adaptive capacity of local food systems.

Recommendation 4

The livelihoods of Māori are strongly linked to land use. Their investments in agricultural, fisheries and forestry (wood products) are exposed and vulnerable to climate. Ongoing evaluation of such vulnerabilities and recognising inter-linkages is essential.

Recommendation 5

More understanding of policy impact on fishing habitats, produce and invasion of fish species can assist in the sustainability of fisheries.

Moving to healthy and low-emissions diets

Recommendation 1

Introduce systems-level public health interventions to reduce consumption of meat, highly processed foods and those high in fat, salt and sugar while increasing access to affordable, sustainably produced and healthy foods. At a population level shifts towards a more plant-based diet are estimated to bring $14–20billion in health savings over the lifetime of the current population[85].

Recommendation 2

Update food based dietary guidelines reflecting Food and Agricultural Organisation principles that include sustainability.

Recommendation 3

Incentivise farmers to transition to producing different foods and fibres, foods with lower environmental impacts and using regenerative farming techniques. Production and consumption practices need to change without relying on technology that is not yet developed.

Recommendation 4

Extend our current food safety system to include foods that are healthy and sustainable.

Recommendation 5

Government can take immediate action through procurement of healthy and sustainable food (for example in hospitals and schools, and look to extend the free school lunches nationwide and use local suppliers rather than relying on corporates). The public sector is responsible for multi-million dollar food contracts but health and sustainability criteria rarely feature in their contracts and there is no evidence of transparent, criteria-based annual reporting clauses in these multi-million dollar contracts. Government-funded food purchasing is an action area with immediate benefits, so binding policies can deliver integrated health, economic and sustainability outcomes.

Recommendation 6

The Government needs to address economic disparities so that people are enabled to make healthy food choices.

Recommendation 7

Consultation must take account of public health the primary factor, ahead of the priorities of production and marketing groups who seek to maintain an unhealthy status quo.

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17. Forestry

Consultation question 17. Do you support the package of recommendations and actions for the forestry sector? Is there anything we should change and why?

OraTaiao **supports some of the actions** to provide a long-term store of carbon.

Native forests offer ecosystem rehabilitation and protection, and we depend on the health and biological richness of the living world.

We support the significant increase in new native forests and the assumption that no further native deforestation occurs from 2025. All native habitats must be incorporated into this approach. For example, wetlands and tussock should be recognised for their role in storing carbon and protected from destruction.

Regenerating native forests have long been used by Māori as sources of fuel, medicine and food and there are many reasons why iwi, hapu and Māori entities may prefer native forests over exotic ones, especially if this choice does not necessitate economic sacrifice[86].

We recommend the approach to forestry must consider how Mana Whenua will be enabled to act as Kaitiaki as outlined by the Waitangi Tribunal, “Accordingly, what is needed here is a system that allows all legitimate interests (including the interests of the environment itself) to be considered against an agreed set of principles, and balanced case by case. Such a system should be capable of delivering the following outcomes to kaitiaki: control by Māori of environmental management in respect of taonga, where it is found that the kaitiaki interest should be accorded priority; partnership models for environmental management in respect of taonga, where it is found that kaitiaki should have a say in decision-making but other voices should also be heard; and effective influence and appropriate priority to the kaitiaki interests in all areas of environmental management when the decisions are made by others."[87]

We support the development of this policy in conjunction with an increased focus on emission reduction rather than offsetting.

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18. Waste

Consultation question 18. Do you support the package of recommendations and actions for the waste sector? Is there anything we should change and why?

OraTaiao **supports some of the actions.**

NZ Waste Strategy targets

Necessary action 13:
OraTaiao **supports setting ambitious targets** in the NZ Waste Strategy for waste reduction, resource recovery and landfill gas capture to reduce waste emissions but these need to be more ambitious than the Commission's proposed 15 percent reduction by 2035. In order to support ambitious targets, **the strategy needs to be targeting all waste streams, not just organic waste.**

Landfills emit methane mainly but we need to be reducing methane emissions significantly as indicated elsewhere in submission.

Population health could be improved by reducing landfill emissions because landfills pollute air, waterways and land. For example, a study of lung function in children living near landfill, compared them with a group not living near landfill and found poorer lung function in the group living near the landfill[88]

Investing the waste levy revenue in reducing waste emissions

OraTaiao supports the Commission's proposed, "investing the waste levy revenue in reducing waste emissions through resource recovery, promotion of reuse and recycling, and research and development on waste reduction." However there also need to be recommendations around:

- **Developing more recycling businesses** within NZ to avoid the problems with transporting materials offshore for recycling.
- **Reduction of packaging** use to reduce pollution associated with extraction and manufacturing of these materials, potentially improving health outcomes.

Measuring and increasing circularity of the economy

OraTaiao **supports** measuring circularity of the economy, however, these measurements need to include emissions generated over the full life cycle of products.

- Needs more specificity on steps to increase circularity e.g. all local councils should be taking on organic waste collection and disposal (other than in landfill) as Christchurch is doing.
- Needs to include further work on public behavioural change e.g. to reduce purchase of "fast fashion" and other short lived products.

Product stewardship

OraTaiao **supports** extending product stewardship.

- Ideally **all products need to be included as soon as possible.**
- Products already covered by the voluntary scheme need to be highlighted to the public to assist in their ability to choose "climate friendly" products.

Other actions

OraTaiao **supports legislating for and funding co-ordinated data collection across the waste industry before 31/12/22.**

Necessary action 14

a. OraTaiao supports extending hydrofluorocarbon (HFC) import restrictions by 2025.
b. OraTaiao supports reducing leakage and improper disposal through mandating good practice.
c. OraTaiao recommends specifically including healthcare HFC emissions within this necessary action. These are mostly found in anaesthetic gases and metered-dose inhalers (MDIs) for respiratory illnesses. Due to our high incidence of respiratory illness and prescribing profile, MDIs account for approximately 5 percent of Aotearoa's total healthcare-related climate emissions[89]. New asthma prescribing guidelines recommend the use of alternative low emission inhalers (dry-powder inhalers) as a first-line therapy. A reversal of our current prescribing from 70:30 MDI:DPI can be achieved with education regarding the new guidelines, self-directed prescribing audits in primary care and prescription controls on MDIs.

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19. Multi-sector strategy

Consultation question 19. Do you support the package of recommendations and actions to create a multisector strategy, and is there anything we should change?

We support **some of the recommendations and actions** to create a multisector strategy. This is broken down as follows:

Necessary action 15: We agree with necessary action 15 about integrating the Government's policy making. We **strongly agree with the advice about procurement within this action, given its importance within the health sector where procurement is responsible for approximately two thirds of all emissions**, and is to a large degree under the control of Pharmac. We would like to see the Commission strengthen its advice by including specifics as to how to include climate change considerations within procurement policies.

Necessary action 16: We agree with embedding behaviour change in the climate change policies and programmes. We recommend this go further and advise the government appoint public health specialists to the board of the Climate Change Commission, and urgently establish a health advisory group in order to make use of the experience there exists within the field of public health to drive the necessary behaviour change.

Necessary action 17- we agree with necessary action 17.

Time critical action 6- we agree with time critical action 6.

Necessary action 18- we agree with necessary action 18.

Time critical action 7/Necessary action 19: We agree with time critical action 7 and necessary action 19. We agree with the immediate increase in the cost-containment and auction reserve trigger. We recommend a more rapid reduction in industrial allocations, that this be moved from 'necessary action 19' to 'time critical action 7', and that defined reduction rates are included therein. **We recommend an introduction of agriculture into the Emissions Trading Scheme before the current date of 2025.** Provision exists for this under the Emissions Trading Reform of 2019-2020, and the Climate Change Commission has the responsibility to assess the response of the Government-Industry partnership (He Waka Eke Noa) in 2022, and should confirm that an insufficient response from them will lead to an immediate entry of agriculture into the scheme.

We agree with the Commission that there are, “gaps in the evidence and data needed to properly analyse the impacts and co-benefits of climate change policy that need to be addressed. A key gap relates to the Māori economy” (p.130).

Fundamental to this is **better endogenously-developed Te Ao Māori health data** (including mauri, hauora, waiora, tangataora etc). Shaun Awatere's catchment-based initiative (from his work on the Deep South National Science Challenge in Ngāti Porou) is something that should be considered here, where there is funding and policy for the development of specialised indicators for health impacts for Māori at a spatial data/catchment/iwi level, to empower and inform iwi-led decision making on climate change actions. That will support policies, actions and outcomes being tika, pono and done with aroha.

20. Rules for measuring progress

Consultation question 20. Do you agree with Budget recommendation 5 on the rules for measuring progress? Is there anything we should change any why?

We give **support for the recommended actions** for the rules for measuring progress. We acknowledge the choice that has to be made between using a production-based approach and a consumption-based approach for budget accounting, and that each has relative strengths and shortcomings.

We agree with the current superiority of the production-based approach, although it **increases the importance of reducing emissions rapidly from agriculture within New Zealand**. We also suggest an increased risk of emissions leakage as a result, and that adoption of this method of measurement will increase the importance of minimising this in the Emissions Trading Scheme (see *Q.19 Multi-sector strategy*). Overall the risk of emissions leakage is low however. For a detailed overview of OraTaiao's position on emission leakage please see the appendix *Addressing the issue of 'Emissions Leakage'* to our submission on the Climate Change Response (Emissions Trading Reform) Amendment Bill from January 2020[90].

We **agree** with Budget recommendations 5b, 5c and 5d.

Reference

[90] OraTaiao (Jan 2020) Submission to the Climate Change Response (Emissions Trading Reform) Amendment Bill. https://www.orataiao.org.nz/climate_change_response_emissions_trading_reform_amendment_bill_and_supplementary_order_paper_413

21-23. Our Nationally Determined Contribution (NDC)

21 (a). Do you support our assessment of the country's NDC?

OraTaiao **strongly agrees** with the Commission's assessment outlined in recommendation 1 that **the first NDC is not compatible** with Aotearoa New Zealand making a contribution to global efforts under the Paris Agreement to limit warming to **1.5°C** above pre-industrial levels.

We would recommend this section start with a discussion of te Tiriti and how it applies to international affairs. In the words of the Waitangi Tribunal: "rangatira appear to have agreed that the Crown would protect them from foreign threats and represent them in international affairs, where that was necessary"[91]. This is qualified as the Tribunal also notes: "that is for Māori to say what their interests are, and to articulate how they may best be protected – in this case, in the making, amendment, or execution of international agreements. That is what the guarantee of tino rangatiratanga requires."[92]

This section must start by indicating the steps, resourcing and timeline to understand and fairly represent Māori interests and partner with Māori when presenting Aotearoa's revised global contribution prior to COP26 this year.

21 (b) Do you support our NDC recommendation?

OraTaiao **does not support** the Commission's recommendations as they are **not ambitious enough**.

OraTaiao **strongly agrees with the draft advice recommendation 2(a)** that to make the NCD (our contribution) more likely to be compatible with contributing to Paris Agreement global efforts to limit warming to 1.5°C above pre-industrial levels, Aotearoa's reduction of net emissions must be **much more than 35 percent below**

2005 gross levels by 2030. We note that 35 percent below 2005 levels equates to around **11 percent** reductions on 1990 levels.

OraTaiao **strongly disagrees with the** Commission's **recommendation 2(b)** that how much our contribution is strengthened beyond 35 percent "should reflect the tolerance for climate and reputational risk and economic impact, and principles for effort-sharing, which are political decisions".

This section of the draft advice must clearly spell out NZ's existing commitments under the Paris agreement, Sustainable Development Goals and other related international agreements and goals, with likely implications for "compatible with contributing" to limiting warming below 1.5°C. For example, applying global averages to NZ is misleading, and ignores our current international commitments.

Formal and familial relationships with Pasifika (who for years, have been at the forefront of international calls to limit warming to well under 1.5°C) need to be acknowledged in this section by **outlining the implications of Aotearoa's special relationships and Pasifika sovereignty** for our revised responsible contribution.

The draft advice **must also be much clearer about the implications of the uncomfortably low probabilities** of the Intergovernmental Panel on Climate Change (IPCC) 1.5°C pathways. Much more certainty than two-thirds or a coin toss is usually expected with health and safety, and even more so, when humanity's future is so profoundly threatened. For mental, emotional, social and physical health, **we owe much more certainty and hope to ourselves and generations who follow us**.

We hope that **more certain pathways than 50 percent and 66 percent will be available** (with the IPCC AR6 Physical Science report due in weeks), to update this draft advice and recommendations accordingly. Meanwhile, the advice could start to compensate for these low probabilities by exploring the quartile with the most conservative budgets. And repeating throughout the sections of the draft advice, that the more ambitious/responsible our emissions cuts are, the better our odds of limiting warming to 1.5°C beyond "a mere coin toss or two-thirds chance".

Because NZ has already signed up to clear international agreements on effort-sharing, we urge the Commission to **include specific guidance** on possible implications to the Minister in this draft advice. These agreements are also referenced in NZ's Zero Carbon legislation, and they support the credibility of the Climate Equity Reference Project (CERP) capacity/responsibility International Panel on Climate Change Pathway 1 analysis cited by Oxfam[93] which points to **at least ten times NZ's current contribution**. Specifically, CERP analysis for NZ ranges from 117 percent reductions on 1990 levels at a medium progressivity approach, to 133 percent reductions at high progressivity levels, both reductions are based on historic

responsibility levels dating from 1850[94]. We also note that: "Human rights principles of *equality* and *non-discrimination* give priority to those who are *most vulnerable*"[95].

A difference in contribution of potentially this order of magnitude (ten times) is <u>essential advice</u> for the Minister and for iwi, members of Parliament, local government, businesses, community groups and households. The Zero Carbon Act's purpose is, *inter alia*, that NZ develops "**clear and stable** climate change policies." This means giving **clear advice now about the likely magnitude of effort required** for NZ to meet our legislative intent to contribute to Paris Agreement-defined global efforts to limit warming to 1.5°C.

OraTaiao recommends that the **Commission's advice also includes recommendations on the composition of NZ's scaled-up NDC** (domestic reductions, tree planting, international credits when/if available, and extra climate finance beyond our fair shares financing), **and the associated risks** with these components. If risk information is not readily available, then this must be identified within the advice as an **urgent government workstream** for robust decision-making, especially around the scale of domestic mitigation within our up-scaled responsible Nationally Determined Contribution.

We note that any delays in rapid domestic emissions cuts (especially continued high emissions infrastructure investment) are likely to cost NZ much more than NZ Institute of Economic Research's (NIER) 2015 multiplier estimates. This is because NZIER did not consider co-benefits of emissions cuts, nor count the costs of avoided climate changes. This non-counting has long been a feature of NZ's climate policy analysis[96]. Yet climate damage costs have been long calculated by prominent international economists as clearly outweighing mitigation costs[97],[98].

Further, OraTaiao urges the Commission to consider and account for the health co-benefits in assessing and advising on how much the government should strengthen the NDC. Health co-benefits must be central in decision-making around recommended mitigation strategies for achieving the NDC[99].

As discussed in previous sections, a recent international study on the health co-benefits of NDCs and implementation policies reported that if nine diverse nations (Brazil, China, Germany, India, Indonesia, Nigeria, South Africa, the UK, and the USA – together responsible for 70 percent of greenhouse gas emissions) adopted commitments consistent with the Paris Agreement and centred health in their climate policies, **the health co-benefits alone would outweigh the mitigation costs**. By 2040, the nine nations (half the world's population) could benefit from an annual reduction of 1·6 million air pollution-related deaths, 6·4 million diet-related deaths, and 2·1 million physical inactivity-related deaths by 2040[100].

This study indicates that Aotearoa's **health co-benefits are likely to be substantial** from an ambitious responsible NDC that centres health equity in mitigation policies, **potentially outweighing mitigation costs**, and significantly reducing non-communicable diseases. These diseases currently account for 89 percent of deaths annually in Aotearoa – **approximately 27,000 deaths each year**[101]. Non-communicable diseases are also the primary cause of preventable ethnic and socioeconomic health inequalities in New Zealand[102]. We also note that around **one-fifth of government spending is directly on health**[103], largely on long-term conditions directly responsive to healthy climate action.

Everyone's right to the highest attainable standard of health should motivate the Commission to account for health co-benefits in their analysis and recommendations on the NDC. Government action to date in response to our COVID-19 pandemic threat shows **how highly New Zealanders value health and survival**, let alone strong public support for safer climate change. Moreover, a health framing of the NDC could give a shared and unifying focus for building greater government and public support both within Aotearoa, but also globally for setting more ambitious NDCs.

This February, despite a year of global pandemic pressure, the **WHO's former Director General, Dr Margaret Chan** summarises the need for healthy and ambitious climate action:

"*With climate change action consistent with the Paris Agreement and a Health in All Policies approach to climate policies, the public health implications are overwhelmingly positive. Such interventions will* ***reduce the burden of non-communicable diseases in the short term and climate-related risk factors in the long term****, with the number of lives saved this century potentially in the hundreds of millions.* ***Thus, achieving net zero emissions is the most important global health intervention now and for decades to come****."*[104]

In Dr Chan's words: "***Health benefits will outweigh the costs of mitigation policies, even without considering the longer-term health and economic benefits of avoiding more severe climate change***."

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22. Do you support our recommendations on the form of the NDC?

OraTaiao **does not support** the Commission's recommendations on the form of the Nationally Determined Contribution (NDC) as they are **not responsible nor ambitious enough**.

OraTaiao **agrees** with **enabling recommendation 1(a)** that the government **should continue to define the NDC on the basis of all greenhouse gases using the most recent International Panel on Climate Change (IPCC) global warming potentials** adopted by Parties to the United Nations Framework Convention on Climate Change. We also **agree** that if the Government updates the NDC, **as we urge it to do**, it **should** adjust it to **use the GWP100** values from the IPCC's **Fifth** Assessment Report**.**

This doesn't prevent NZ choosing different tracks for our three main greenhouse gases, and signalling these in ways that role model responsible approaches globally, but don't lock NZ into these tracks. With our revised responsible global contribution (NDC), we will need significant flexibility to reduce the gases in the most economic ways possible, differing over time. For example, given the greater radiative forcing of methane in the shorter term, **rapidly reducing methane is a route to much needed "early wins"**.

Rapid global methane decreases are also much more in NZ's direct interest than widely understood as we have urupa, kaimoana and expensive infrastructure along our coastlines threatened by methane warming and expanding our oceans for hundreds of years[105,106]. So for our own self-interest, we may want to model fast methane cuts for the world.

We **strongly support enabling recommendation 1(b)** that the Government continue to contribute to further global mitigation beyond the NDC through the provision of **climate finance to developing countries,** and **active participation in mitigation mechanisms for international aviation and shipping.**

Additionally, OraTaiao **strongly recommends** that the Government **immediately increase** its **climate financing contribution to developing countries.**

Therefore, in line with Oxfam NZ's recent analysis of NZ's fair contribution to the USD$100 billion Climate Finance commitment, **we recommend increasing NZ's climate finance levels to $301.5-$540 million per year** in the 2021-2023 aid triennium[107]. By contributing our full equitable climate finance each year from 2021

onwards, **Aotearoa may open up the possibility of having additional climate finance recognised as a component of our revised responsible NDC**.

However, our increased climate financing **must not displace other critical funding for health, education and other development areas**. We recommend in light of the COVID-19 pandemic, that this other critical funding is also rapidly increased as part of NZ's long term commitment to contributing 0.7 percent of our Gross National Income to Official Development Assistance[108]. Additionally, we recommend that the Government **increase its focus for funding on least developed countries.**

Finally, to **improve transparency** in what is counted towards climate finance goals versus climate-related development assistance, climate finance should be **delivered through a VOTE Climate Finance budget line**, as proposed by Oxfam. As well as meeting our global obligations, these measures all add credibility to NZ offering additional climate finance as potentially another mechanism for fulfilling our revised responsible NDC.

OraTaiao also agrees that NZ must actively participate in mitigation mechanisms for international aviation and shipping. Although these are not currently included, these are growing sources of significant emissions. **NZ has a particular interest in international travel emissions as a far-flung set of small islands**. When these emissions are included internationally, NZ will want to be well on the way to reducing their size in our greenhouse gas inventory for example, more energy-efficient sailing including for passengers, full plane loads every time, smarter routes and prioritising flight access on humanitarian grounds.

For Aotearoa's survival (including economic well-being), we need the climate cooperation of both "developed" and "developing" nations. As the 24th richest country globally by Gross National Income per capita, a high historic emitter, a high current emitter, blessed with a benign climate, plentiful arable land and natural resources, and relatively unscathed by COVID-19 (so far), **we must be seen to be doing our fair share of emissions reductions**.

Attempting to reframe a target that is not, on the face of it, 1.5°C consistent may risk, as the Commission points out, Aotearoa not being seen as contributing our fair share. As a very small (albeit high-emitting) nation, **we are still a "climate taker", rather than a "climate maker".** "Our fair share" is really our only currency in bidding for the world to take the steps that protect the stable climate, ocean conditions and global markets that NZ relies on. If we're not seen to be setting a fair example as a relatively wealthy developed nation, we may allow others like us to adopt a weaker approach. We cannot take this risk – the climate costs are too great for Aotearoa, let alone our global neighbours.

Contributing our fair share also includes stepping up climate finance to enable low/zero emission pathways to prosperity in line with the Sustainable Development Goals 2030 (despite COVID-19 widening the wealth gaps globally and within nations) and adaptation expenses for developing nations least culpable and most harmed by the effects of climate change.

Moreover, Aotearoa has not been contributing its fair share to the global US$100 billion climate financing commitment under the Paris Agreement[109]. Aotearoa's level of climate finance funding from 2017-2018 ranked just 21st on a per capita basis and grant equivalent totals places NZ in a better, but still low, position of fourteenth[110]. NZ's new triennial aid budget set in May 2021 provides an early and crucial opportunity for NZ to increase our climate finance and contribute our fair share. We need to be fully contributing to climate finance, before we can ask to have additional finance counted as part of our contribution (NDC).

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23. (a) Do you support our recommendations on reporting on and meeting the NDC?

OraTaiao supports enabling recommendation 2(a) that the Government should continue to enable the Nationally Determined Contribution (NDC) to be met via domestic emission reductions, domestic removals and international carbon markets. As above, we note that delays in domestic emissions cuts, especially continued high emissions infrastructure investment, are likely to cost NZ much more than NZIER's 2015 multiplier estimates.

OraTaiao supports enabling recommendation 2(b) relating to **annual reporting** on how the Government plans to meet the NDC. Even though governments are required to report biennially on their NDC progress, we agree with the Commission that annual reports on policies, actual and projected emissions, are valuable within NZ. This is also consistent with requiring NZ businesses to report climate risks annually, as a mutual high-trust "no surprises" relationship.

Transparency through regular reporting is essential for enabling the public and public interest organisations to hold the government to account for meeting their NDC obligations. Protecting our climate is our bigger "team of 5 million" task.

OraTaiao supports enabling recommendation 2(c) that the Government should **clearly communicate its strategy for purchasing offshore mitigation** to meet the NDC and how it will manage any fiscal risks in doing so. As observed above, the rate at which the Government should use international emissions trading to meet NDC responsibilities, must be carefully calculated with full transparent cost-benefit analysis over short and longer time periods. These are critical decisions for NZ's current and future well-being. Everyone in NZ has the right to know how these decisions are reached, and challenge any omissions, factual errors, or weak assumptions.

23 (b) Is there anything we should change, and why?

Meeting our Nationally Determined Contribution (NDC)

OraTaiao also strongly agrees (given our NDC ambition/responsibility must accelerate **ten-fold**) that **NZ must urgently proactively develop international carbon trading access**, including smaller trading partnerships everywhere we can develop these.

We recommend that access to international emissions trading markets be **limited to Government level,** at least over the next decade or so. This means the **NZ Government can target their use** with international emission trading levels maximising NZ's overall short and long term well-being, not an individual business's short-term needs.

Getting the best level of international emissions trading investments to meet NZ's responsible NDC will mean careful cost-benefit modelling that considers both the short and longer term, co-benefits and flow-on impacts. We need to see international emissions trading as a **precious resource (like carbon removals via forestry) not to be used lightly**.

We can expect that the **prices for international emissions offsets will rise** over the decades (perhaps rapidly), as cheaper easier emissions reductions will disappear. International emissions trading is also dynamic according to the less predictable choices other nations make over time.

Investing quickly now in getting our own country "net-zero ready" will mean considerable savings later, as well as increasing our credibility and advocacy capacity in international climate talks. Any proposed delays beyond 2021 in ensuring low/zero emissions infrastructure (regulating new buildings, boilers, vehicle imports, light rail, cycleways etc) must be **thoroughly costed over our longer term**, bearing in mind the likely increases in emissions costs.

NZ's experience and research in becoming "net zero ready", will also become **valuable research resources to share with other nations** in our global effort to rapidly reduce climate risk. This is another opportunity for NZ as a small "climate taker" to influence a safer level of climate and ocean changes for ourselves.

NZ may be able to credit additional climate finance towards our NDC but getting global agreement is likely to mean scaling up our basic contribution to a much higher level first – **$301.5-$540 million per year from 2021**[111] (about four to seven times more per year than NZ's current contribution).

Annual reporting and offshore mitigation strategy communication

OraTaiao strongly recommends that the **Commission reports annually on a wider range of data**. This will help us better identify and manage risks quickly – and demonstrates our good faith emissions reductions to other nations. In practice, this information may be collated by other government agencies for the Commission.

This wider information must include:
(i) **thorough cost-benefit analysis of domestic mitigation**, including impact on Māori economy, well-being and Tiriti partnership, immediate and longer term health benefits, job creation (rates, pay level, conditions, distribution, locations and ease of transition), impacts on Treasury Living Standard framework domains, infrastructure value over this century, equity across NZ and across generations, and overall well-being.

Gross Domestic Product (GDP) changes are a totally inadequate measure to evaluate NZ's well-being, future resilience, and how best to allocate NDC components – including recommended domestic mitigation policies. Furthermore, GDP was never designed to be a measure of societal well-being. We also urge use of more contemporary analytical frameworks such as Raworth's *Doughnut Economics* model and methods including health impact assessments and cost-effectiveness analysis, as well as consideration of market, state, commons and household domains[112,113].

(ii) **Monitoring NZ's potential future risk areas**:

- **International shipping and aviation**: calculating our annual exposure from these emissions levels, and where we could best reduce our exposure, with wide cost-benefit analysis (again, not GDP, but rather, direct impacts on numbers & nature of jobs, tax take changes, environmental and health gains/losses etc).
- **Consumption emissions:** although production emissions have been internationally agreed as easier to monitor, monitoring NZ's consumption emissions will enable us to better anticipate risks and changes as the world rapidly reduces their production emissions. We will also be acting as responsible global citizens by consuming less, calling for lower production emissions, and encouraging circular economies.
- **Global emissions reduction pathways that will give much more certainty** than 50 percent (flip of coin) and 66 percent (2 in 3 chances) of limiting global warming to 1.5°C. Given this is about the human health and well-being of New Zealanders and the rest of the world, a reasonable person should expect

"virtually certain" >99 percent; "extremely likely" >95 percent; or "very likely" >90 percent.[114] This includes establishing NZ's "reasonable person" interpretation of the intended probability of adhering to the 1.5°C limit outcome of the legislation. This could also be informed by reasonable expectations of other NZ health and safety legislation.

- **Global methane trends and likely impact on NZ's coastlines and infrastructure, as sea levels rise.**

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24. Eventual reductions in biogenic methane

Consultation question 24. Do you support our assessment of the possible required reductions in biogenic methane emissions?

Given the plain meaning of Aotearoa contributing to limiting global heating to 1.5°C, we recommend that the Commission considers the scenarios closer to the lower quartile range, which as the Commission points out, "have greater methane reductions and are less likely to overshoot the 1.5°C goal" (p.170 draft advice). As we stated above in *Consultation Questions 21-23*, New Zealanders expect a much greater probability than two-thirds or a toss of a coin, in health and safety let alone the enormity of risk and irreversible global outcomes for human health associated with climate change.

We also note that 1.5°C is not a "goal" but 1.5°C is the absolute maximum limit for less catastrophic global heating. The government has already declared a climate emergency, and our Pacific whanau and neighbours lead the call for limiting global warming well below 1.5°C.

For Aotearoa's survival (including economic well-being), we need the climate cooperation of both "developed" and "developing" nations. As one of the richest country globally by Gross National Income per capita, a high historic emitter, a high current emitter, blessed with a benign climate, plentiful arable land and natural resources, and relatively unscathed by COVID-19 (so far), we must be seen to be doing our fair share of emissions reductions.

International agreements on effort-sharing (which NZ has signed) are referenced in NZ's Zero Carbon legislation, and these support the credibility of the Climate Equity Reference Project (CERP) capacity/responsibility Intergovernmental Panel on Climate Change Pathway 1 analysis cited by Oxfam[115] which points to at least ten times NZ's current contribution. Specifically, CERP analysis for NZ ranges from 117 percent reductions on 1990 levels at a medium progressivity approach, to 133 percent reductions at high progressivity levels, both reductions are based on historic responsibility levels dating from 1850[116]. **Given the greater radiative forcing of methane in the shorter term, rapidly reducing methane can give us much needed "early wins".**

Although this is challenging for Aotearoa, with a long-term reliance on meat, wool and accelerating dairy exports, neither meat nor dairy are essential foods, and there is considerable evidence of health harms related to meat consumption as discussed above.

Although global modelling of methane cuts is less than carbon dioxide and nitrous oxide, we need to remember that these are global averages, and because NZ has agreed to national responses according to relative capability and historic responsibility, our trajectory is 117 to 133 percent overall reductions on 1990 levels of all gasses by 2030.

We also note that: "Human rights principles of equality and non-discrimination give priority to those who are most vulnerable"[117]. **Subsistence dairy in developing nations and rice production as a staple for many of the world's poorest people, have a much stronger ethical claim for some continued methane and nitrous oxide emissions**, than NZ's meat and dairy exports to a globally growing middle class who are increasing their animal product intake (and rates of diet-related disease).

Arguably most importantly, the description of methane as 'short-lived' is dangerously misleading. Although methane's atmospheric presence is relatively short-lived, it has long-lived effects due to oceanic heating, and contributes to crossing of potentially irreversible climate tipping points as outlined in successive IPCC reports.

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