

Attn:

National Adaptation Plan Consultation

Ministry for the Environment

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Submission on the 2022 Te Mahere Urutaunga ā-motu (Tuhinga Hukihuki) Draft National Adaptation Plan

*Hutia te rito
Hutia te rito o te harakeke
Kei hea te kōmako e kō?
Kī mai ki ahau
He aha te mea nui?
He aha te mea nui o te ao?
Māku e kī atu
He tangata! He tangata! He tangata, hī!*

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Our Kaupapa

Forest and Bird Youth is a nationwide network of young people (aged 14-25) who are protecting and restoring Aotearoa's wildlife and wild places. With over 500 members and supporters, our vision is to see empowered rangatahi actively engaged in our connection to te taiao and in the fight for our future. Our mission is to take action for nature as youth, with youth, and for youth.

Our organisation intersects with climate change in three main ways:

- As representatives of rangatahi, we will disproportionately face the intergenerational impacts of climate change.
- As environmentalists, we see the damage climate change will have on te taiao and our communities, as well as the many impacts of the interrelated crises.
- As conservationists, we are extremely concerned with the future of our native taonga - our ngahere, moana and other ecosystems (and the species they contain) face an extremely grim future under business-as-usual climate change scenarios.

It is through these three lenses that Forest & Bird Youth derives its kaupapa and approach to the climate and ecological emergency.

We have had enough of seeing endless warnings and reports¹ - repeating the same grim statistics and calling for transformational change - only to be ignored. The experts have told us that climate change, and the broader system problem it is a symptom of, will not be solved by incrementalism. Around the world there is an extreme disconnect between what the science says is required, and the responses that are being implemented - Aotearoa is no exception to this. The proposed National Adaptation Plan falls in a middle ground between these two categories, as while it proposes some big changes to the way the people of Aotearoa live their lives, we believe the advice falls short of what scientists, indigenous peoples, and frontline communities worldwide say is needed to create a truly sustainable and resilient society.

The Plan must be strengthened with science and mātauranga Māori if our communities, our urban spaces and our economy are to survive the drastic changes predicted for the next 40 years and on. A systems perspective must be used when formulating the final Plan, in order to not cause more problems than the solutions will solve. We already have a precedent for this - tangata whenua are systems thinkers and te ao Māori is a systems worldview that considers all of the interconnections between te taiao and te tangata. If we listen to mana whenua and adopt kaupapa Māori solutions to climate change, then Aotearoa will be able to meet humanity's greatest challenges and solve many interrelated problems. In the foreword to the draft plan, **Vicky Robertson outlines the importance of addressing and adapting to the oncoming changes together, as a whole community, and how crucial it is that we collaborate in the development of the Plan for Aotearoa.** We welcome this commitment and look forward to seeing substantial changes made based on the evidence we have outlined throughout the rest of our submission.

Young people are already disproportionately feeling the impacts of the changing climate and the associated societal issues. Our youth in Aotearoa are bearing the brunt of these crises, not only through the stresses of forecast challenges, but also by taking up the responsibility of ensuring action today, to minimise ramifications in the future. From increased living costs to the ever-distant opportunities for home-ownership to limited modes of sustainable travel, young people are already meeting the looming breaking point head on.

We are at a juncture in human history - as a country, Aotearoa can take the lead and build solutions for good; or we can choose to do the minimum and embrace the on-coming decades of suffering. As Vicky says, this is a challenge that we can only address together, and must come back to principles of co-governance and co-ownership to ensure all of our communities are engaged and invested in our solutions.

Note that this submission should be read in conjunction with that of Forest & Bird.

Twin Crises: Climate Change and Social Well-being

The fabric of life on Earth is unravelling rapidly, and only transformative economic and policy decisions will sustain nature - and our society - into the future. In the last 150 years², humans have managed to wipe out huge proportions of wild animals, eradicate various delicate environs and dismantle unique and sensitive ecosystems across the planet. Alongside that, we continue to put our own existence at risk, by polluting our air, contaminating our water supplies and creating food that is ever more toxic⁸⁴.

A recent study concluded that in 2020, human-made materials crossed the tipping point where they now outweigh Earth's entire biomass - in other words, the production of concrete, metal, plastic, bricks and asphalt is now greater than the mass of living matter on planet⁴. The amount of plastic alone is greater in mass than all land animals and marine creatures combined. **The evidence is clear that the human footprint on the earth has had disastrous impacts on biodiversity.**

In this time, we have also been rapidly chipping away at the environment that we rely upon for our own success. The resources we use to house, clothe and transport ourselves grows ever more scarce with ever greater implications from its extraction; our food and water sources become more tainted and tenuous by the day⁸⁵, and the gap between the haves and the have-nots is reaching inconceivable lengths.

The oxygen-producing rainforests, carbon-sequestering wetlands and nutrient-producing oceans are being burned and pillaged at ever-increasing rates, with little acknowledgement or recognition of the building challenges we will face without them. The natural structures that provide regulatory ecosystem services in protecting our existence such as mobile sandbanks, storm-absorbing mangroves, resilient tundra and flood-storing marshlands are being replaced by sprawling suburbs and intensive agricultural areas.

Aotearoa's most recent state of the environment synthesis identified that climate change is already impacting our vulnerable taonga, and that it is likely to lead to devastating consequences when paired with the additional stresses our precious species face⁵. Therefore, it is imperative that *Manatū Mo te Taiao* prioritises our native taonga when refining its Plan and gives broader consideration to the interconnectedness between climate change and biodiversity, as well as other issues. To solve these problems, experts have stated that we must radically transform society with policy options that both politicians and industry have hitherto seemed allergic to - and that we must radically overhaul our economic system which has been increasingly designed to maximise the extraction of material contributions from nature⁶.

In MfE's draft National Adaptation Plan, nature has missed out on the comprehensive policy and transformational change it needs to survive in the face of a climate crisis, and that we, in turn, need to prosper. While the negative impacts that biodiversity loss and ecosystem damage will have on our societies were fleetingly mentioned in the draft Plan, the Plan failed to expand on this and talk about how nature can be used as a tool to help us adapt to the changing climate

and variable conditions expected in the coming years - nor the co-benefits for society and other environmental issues that come from protecting and restoring nature. MfE must recognise the role our economic system has had in ecological degradation, how tightly coupled the growth of this system is to the infrastructure we have (including “natural” infrastructure), and recommend wholesale system changes which change the goal from “extraction” to “restoration”. This is how biodiversity loss and climate change are intimately connected.

The adversities faced by our international communities over the last few years has brought to light the vulnerabilities we possess in our heavy reliance on external sources for food, energy, and materials. We have seen the swing of the economic dial in the daily increasing prices and yet we continue to invest in systems that include heavy reliance on international resourcing. Ever more funding is provided for roads for increased private vehicle capacity, despite the clear recognition for the need to reduce VKT and support transport systems that are equitable and sustainable such as public transit and walking/cycling provisions, with the added benefit of reduced necessity for imported fuels.

Addressing climate change requires we address a host of issues, most notably biodiversity and habitat loss. The National Adaptation Plan must look at climate change through a te ao Māori lens and develop policy change that is holistic. Toitū te whenua, toitū te tangata: our wellbeing and the wellbeing of the environment is tightly intertwined. We offer some suggestions for using holism to address both climate change and biodiversity loss:

- **Nature can save our cities.** Less than 2% of our urban areas are reserved for nature, and research has shown that at least 10% is required to prevent ecosystem collapse⁵. Manatū Mo te Taiao has largely based the Plan and modelling on urban form as we know it, but our cities could be radically different. The application of the 15-minute city concept and restoration of urban ecosystems would allow us to build accessible, resilient and equitable spaces for our communities to grow. The 15-minute city requires that each neighbourhood offers almost everything its residents need for their day-to-day life and work within 15-minutes travel by walking, cycling and public transport - without the need for cars⁷. This change means that with the increased likelihood of natural disasters and growing impacts of such, the impacts will be less widespread and less devastating. Communities will be more able to support themselves and continue to function through various impacts and emergencies. This includes urban green spaces, which are vital to mental and physical wellbeing and provide a host of ecosystem services⁸. Urban ecosystems which are representative of local native and endemic species offer even greater wellbeing benefits, and their protection and restoration helps stem biodiversity loss from development and other threats^{9,10}. Restoring nature will make our towns and cities liveable, distinctive, climate-resilient and internationally recognised.
- **Preserving and restoring wilderness will make us flourish.** Our precious ecosystems provide significant protection from harm and damage - and have the ability to absorb and provide boundaries before the impacts of natural disaster. Currently, the world protects 15% of its land-based ecosystems (in Aotearoa this is closer to 30%) but a recent analysis has found that up to 35% more land will require protection in order to stem

multiple crises¹². It is important that Aotearoa protects a sufficient range of ecosystem types across our country - while we have a large area of protected land, this mostly exists in montane ecosystems. Our lowland ecosystems have been decimated - such as wetlands which have lost 90% of their pre-human extent⁵. Our fragmentation and degradation of these ecosystems affects their integrity and ability to absorb impact, so it is imperative that our response to climate change does not further compound this issue^{13,14}.

- **Nature-based solutions are the answer.** They can provide the most effective and broad-spread interventions⁸⁶ and strengthen our partnerships in conserving the well-being of people and planet. Perhaps the greatest advantage of nature-based solutions is that they are available to deploy today, are scalable and can transform key industries, such as forestry and agriculture. Nature-based solutions bring together established ecosystem-based approaches, such as ecosystem-based adaptation and ecological engineering with social and economic dimensions¹⁶. They are low-tech, cheap, and are analogous to practices that have existed for centuries and millennia in indigenous knowledge systems¹⁷. Thus, mātauranga Māori would be a valuable resource for developing nature-based solutions in Aotearoa. If Manatū Mo te Taiao grasped the utterly crucial roles of our native taonga and nature-based solutions in its climate response, Aotearoa would dramatically transform the whenua, moana, and rangi - safeguarding our life supporting systems.

Whilst wetlands, coastal and other ecosystems have been identified as significant to biodiversity protection and carbon sequestration, far higher emphasis must be placed on nature-based solutions. When addressed in silos, the extensive range of issues to be dealt with seems insurmountable. However, nature-based solutions, when managed correctly, can address a whole spectrum of ecological, cultural, social and economic challenges. Serious investment in wide-scale wetland restoration and protection can not only lead to carbon storage and increased biodiversity, but also improve access to mahinga kai sites, support soil health for farming and reduce air and water pollution⁸⁷.

This includes the need to raise the profile of significant pest control measures. Whilst increasing mitigation by expanding our forests' capability of sequestering carbon, this will also increase the resilience of our landscapes in ecosystem services, thereby supporting the resilience of humans and nature in Aotearoa⁹⁴. This concept also applies to the need to transition to regenerative agricultural practices that result in net benefits for the landscape.

Strengthening the Plan with Evidence

Transport & Urban Design

Transport & urban design are critical areas in need of transformation in Aotearoa's climate change response - our transport system with its heavy reliance on private vehicle ownership and use is highly sensitive and fragile, and will not hold up to the environmental stresses of the coming years. However, despite stating that active and public transport must be prioritised, little priority has been given to transitioning away from our unhealthy relationship with cars.

Perplexing also was that little focus has been put on moving freight transportation to rail and coastal shipping. It is clear that the Ministry for the Environment has underestimated the close relationship between transport and resilience; the limits to deploying aid and mobility in a crisis; and the wider connection between how we get around and the quality of our lives.

For decades city planning and urban design in Aotearoa have been extremely car-centric, leading to heavy dependence on private vehicles^{19,20} and the social, environmental, and economic ills such dependence brings^{21,22}.

- We now have the highest per-capita car ownership in the OECD²³. This is despite the fact that active transport provides for greater resilience, alongside multiple co-benefits across health and quality of urban life²³.
- The ability of our planet to provide the required resources for our continued consumption and use of private vehicles through mining and extraction mean that we as a nation, and as a culture, are more vulnerable to the risk of international market shifts and the ever-possible collapses.
- Our cities are designed for cars and not for people; without the availability of affordable private vehicles and associated fuels (for ICEs), our methods of transportation are likely to collapse and will support neither our accustomed lifestyles, nor our economy.

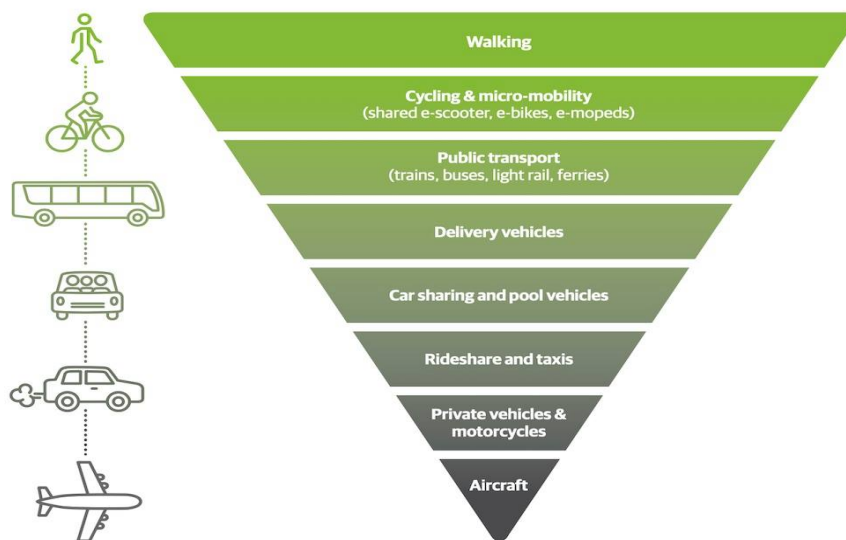
It is therefore unacceptable that the Plan proposes to continue our standard business-as-usual practices without significant changes to the way we function. We must see a stronger multi-modal shift towards greater options in broader and more effective public transport, walking, cycling, and e-mobility. In reflection of this, we need to have stronger targets in reducing VKT alongside a reduction in household reliance on private vehicle transportation.

The excuse of resilience also seems to be frequently used as a reason to build further transport corridors and additional gas pipelines, thereby committing ourselves to further carbon emissions and furthering the impacts of climate change. In contrast to this, it would be possible to instead invest in positive infrastructure, such as additional rail lines for low-emission movements of both freight and people, and additional renewable energy sources.

A transformation of our transport system must be built, in association in particular with our more vulnerable communities with already limited access to the necessary amenities for day-to-day life. This needs to be done with wholesale **reform of urban planning**, challenging its dominant

paradigms and ensuring that thriving, people-centred, and nature-friendly urban centres are the norm. Some ways to do this include:

- Rapidly improving active transport infrastructure and reprioritising road space. Multiple international studies have shown that the provision of safe, dedicated active transport infrastructure causes mode shift to skyrocket²⁹⁻³¹. Getting most of the population walking and cycling is possible if we reprioritise street space and make it more accessible (especially to those with disabilities), and most of the government's transport budget should be going towards active transport.
- Other supporting measures include incentivising employers to promote active transport; supporting community solutions such as bikeshare schemes, bike libraries, and repair locations; financial incentives for e-bikes; and increasing the safety of walking or biking by decreasing speed limits and creating spaces without cars. This will drive the necessary behaviour-shift so that our society will be better prepared for future shifts.
- Similar measures are needed to encourage public transport: infrastructure provision, financial incentives, and accessibility need to be considered. Inter-regional transport, such as night trains and sleeper buses, urgently need to be investigated and funded to discourage inter-regional travel in private cars.
- Importantly, car use in particular needs to be discouraged. Reprioritising road space, banning urban sprawl, congestion charging, and increasing the costs of car ownership in general to align with its environmental costs. In doing so, we will begin to reshape our spaces and drive a paradigm shift towards self-reliance and community-centred resilience.
- Most importantly, a climate justice approach to transport must be taken. Improving active and public transport and encouraging widespread modeshift will reap massive benefits for marginalised communities (such as Māori and those with disabilities), senior citizens, and low-income individuals - and have huge co-benefits for our health³²⁻³⁴.
- To summarise these recommendations, we propose the following transport hierarchy:



Agriculture & Food Supplies

Aotearoa's food system contributes the largest share of emissions of any sector, and is responsible for a wide range of environmental impacts - most notable being our freshwater and biodiversity crises^{2,18,35}. It is also a particularly vulnerable sector, relying heavily on increasingly unreliable weather patterns and nutrient flows. Unfortunately, the proposed Plan has neglected to consider wide-scale system reform in this sector, despite the clear and obvious social, environmental, and economic benefits of doing so³⁶. Instead, MfE has opted for a conservative approach, recommending only minor changes.

Wide-scale reform of the food system is needed to meet our climate goals, safeguard te taiao, and ensure our people can thrive, as it is a major driving of our exceedance of planetary boundaries³⁷.

- IPBES, DOC, and our most recent state of the environment synthesis all point to habitat loss and the resultant cumulative effects of land-use change towards animal agriculture as the leading cause of biodiversity loss^{2,5,42}. 32% of Aotearoa's 500 land environments have less than 10% cover of native vegetation remaining, and this is most pronounced in the loss of over 90% of our wetlands - a critical habitat for climate resilience - which were mostly drained for agricultural purposes⁴².
- Our freshwater crisis, driven by intensification of farming practices, has severely depleted the mauri of our waterways. Three quarters of our native fish species are at risk of extinction, with pasture-based agriculture identified as the leading driver⁴³. 95% of river length in pastoral catchments contains pollution above acceptable levels; 70% of lakes in pastoral catchments are in poor ecological health; and, taking water for irrigation has the greatest potential to cause widespread reductions in river flows across the country when compared with other uses³⁵. A study which modelled these (and other) environmental externalities found that the environmental costs of dairy farming are extremely close to, or outweigh, the entire revenue of the industry⁴⁴. The health of our waterways is closely linked to our access to freshwater supplies, and, as we have seen time and again across the country, depleting healthy water sources are leading to greater human health risks, such as the campylobacteriosis outbreak in Havelock North in 2015.
- There are major impacts on human health as a result of the continued expansion of animal agriculture in Aotearoa. Eating meat regularly increases a person's risk of developing heart disease, diabetes, pneumonia and other serious illnesses⁴⁵. Research conducted in Aotearoa has shown that reducing meat in kiwi's diets could confer up to 20 billion dollars worth of savings to our healthcare system, and save us 1.46 million quality-adjusted life years⁴⁰. There is also emerging research showing that up to 800,000 New Zealanders may have increased bowel cancer risk due to nitrates in water - which are derived from nitrate leaching in pastoral catchments⁴⁶. Improved health outcomes could have untold benefits on our economic and physical resilience.

Some consideration has been given in the Plan to improving soil health by reducing erosion, afforestation, and integrated farming practices. However, Aotearoa loses 192 million tonnes of soil every year, 44% of which is from pasture⁸⁸. The same report shows the severe degradation

of soil health, putting the resources we rely on for food, water filtration, building materials, ecological health, and so much more, at extreme risk. This highlights in particular our vulnerability, and, particularly with the emphasis on international independence, shows our need to build resilient and local food systems.

Similarly, a very brief mention of the need to research regenerative agriculture has also appeared. However, this is nowhere near enough. To work towards an agriculture system that is both sustainable - environmentally and economically - and capable of feeding 5 million people, we must be putting concerted effort and investment into more effective systems by providing financial incentives and educational support for a just transition. Regenerative agriculture has been understood and harnessed for generations, and by using indigenous and inherited knowledge, Aotearoa New Zealand could become a world leader in sustainable food production.

It is therefore imperative that the Plan include measures to support a shift towards a more sustainable and locally-sourced food system, with a view in particular of **shifting away from intensive farming practices; phasing out synthetic fertilisers and high-risk imported feeds such as palm kernel; and supporting Aotearoa in building focus on a greater number of smaller scale, higher quality local producers**. This needs to be done with wholesale reform of the food system so that it is low-impact, healthy, and regenerative. Some ways to do this include:

- Incentivise and support the shift towards regenerative agriculture methods through set-up grants, provision of practical guidance, and consumer education to encourage a shift in demand towards higher quality produce, whilst providing support to disproportionately impacted communities.
- Reducing reliance on imported ingredients and food sources. A behavioural shift must be made towards eating local and in season to increase support for local suppliers, build resilience against the growth of potential international supply risks such as weather impacts, political disruptions, and spread of disease, as well as reducing carbon emissions.
- Supporting plant-based food production by investing in research and development into alternative proteins and “clean meats”. This would also need to involve a just transition for farmers so that they are not left behind due to changes in government policy.
- Enabling indigenous food sovereignty through the support of kaupapa Māori food systems, such as hua parakore, which are world-leading and recognise the interconnections of te taiao. This would also uphold te Tiriti o Waitangi and provide Māori with just, equitable solutions to the problems with the food system imposed by colonisation.

Natural Resources

The energy systems in Aotearoa face massive challenges in order to decarbonise, and this has implications for the way in which we provide housing⁴⁹. De-centralised energy systems have been successfully implemented on a large-scale internationally, and similar systems through financial incentives for residential renewable energy sources could be trialled here in New Zealand. This move away from large-scale power generation, and particularly to renewable energy sources, would provide greater resilience during the likely increasingly regular emergencies such as extreme weather events.

In the same way, options for individual rainwater collection systems could be trialled, and home-grown food supplies encouraged and incentivised where possible. Rising costs of living will particularly affect our most vulnerable, as well as young people. Therefore, in our plans of adaptation to climate change, assessment of the use of our resources is crucial. Where there is current reliance on high impact, high planetary cost resources such as concrete, steel and asphalt, a genuine focus should be on moving towards more sustainable alternatives, both those already in existence and regular use, and opportunities for further innovation.

Equally, the view of waste streams as a resource will be ever more critical with the increasing costs, both economically and in terms of carbon emissions, of importing virgin materials. The assessment of waste systems and risks must be focused around a shift to a circular, reusable economy, including the considerable opportunities to become a world leader in this space. In particular, with the growing costs and intensive needs for the provision of virgin materials from overseas sources, waste recovery should have more of a focus in the Plan. As an interim measure as we move to a less consumer-based economy, our waste streams should be treated as the valuable resource that they are, in providing necessary materials for our demands.



Figure 2. The Zero Waste Hierarchy by the Zero Waste International Alliance.

- In recognising refuse as a resource and not as a waste product to be removed and discarded, significant opportunities to shift our standard practices arise. For example, organic waste has huge potential to developed as a valuable resource for compost and fertiliser⁹³. Therefore, interventions should be put into place reducing organic waste to landfill; mandates should be introduced for separate collection of organics from both residential and commercial sources, in order to halve food waste at source by 2030 (in line with the NZ Food Waste Champions 12.3 goal), and divert more organic waste to local and regional composting. There is also need to recognise the preference for local communities to build soil and sequester carbon through decentralised local composting systems, rather than centralised anaerobic digestion.
- The Plan should be setting reduction targets for all waste streams. When we reduce waste, we reduce our external requirements on the planet and increase our ability for self-reliance. Government needs to set binding waste reduction targets in the Waste Strategy and the Waste Minimisation Act for all waste streams, organic and inorganic. This includes single use plastics and packaging, e-waste, textile, and construction and demolition waste.

Marine Ecosystems, Climate Change, and Ocean Acidification

Both the value of maintaining marine health and the risks and impacts of not doing so have not been addressed effectively in the Plan. This is a crucial consideration given oceans are the largest and most significant 'climate breaks' on the planet⁷⁵, increasing resilience of land ecosystems by allowing the distribution of nutrients, weather patterns, and heat.

Approximately 7% of the world's oceans are protected to some extent; in New Zealand waters, the Ministry for the Environment estimates that only 0.31% of our total marine area is fully protected in a marine reserve. To take the climate crisis seriously and address the significant risks we face, it is imperative that we consider marine and coastal health in our climate change response. Significant areas of our ocean must be set aside in Marine Protected Areas with consideration to habitat connectivity, commercial fishing must be monitored and controlled, and deep-sea trawling must be eliminated. Sustainable fishing practices must be driven and encouraged, not only to protect fishing stock and maintain this resource in the long-term, but to increase the up-take of carbon from our atmosphere to minimise the impact of on-going emissions in the short-term.

This is crucial not only for maintaining long term, healthy fish stocks for future generations, but also for maintaining food sovereignty for indigenous communities in the present. Our marine resources are critical for the survival of many practices including for protein and economical incomes⁸⁹. These stocks must be prioritised and protected for them in order to amend our current colonial assumptions.

To effectively address climate change, **a systems-based approach must be taken**; oceans must be protected through policy change and governmental action, the fishing industry must adopt best-practice and sustainable methods, and CO₂ emissions lowered to limit the ever-growing impact on marine environments. It is clear that action must be decisive and calculated, and a consistent, clear message must be sent that expectations of an urgent and forceful change of the fishing industry are growing.

The Path to Holism

Te Ao Māori & Upholding Te Tiriti o Waitangi

Toitū te whenua, toitū te tangata - the lack of a holistic perspective in the proposed Plan is a mistake that would not have been made if the Plan had been written from a te ao Māori perspective. The intimate connections between the health of the land and the health of people, whakapapa, and tino rangatiratanga give Māori the ability to manage and provide for their own affairs in a way that nourishes and regenerates te taiao^{62,63}. The National Adaptation Plan must do better in its final advice to incorporate this perspective to ensure that its advice is sound, but also to uphold Te Tiriti o Waitangi.

Ensuring that the authority of mana whenua as kaitiaki is upheld, while using mātauranga Māori to reset our relationship with nature, will allow us to chart a sustainable and resilient path forward. Environmental outcomes are vastly improved with the use of indigenous knowledge and the involvement of indigenous communities^{64,65}. Partnering as treaty partners in a way which respects tikanga Māori and tino rangatiratanga allows for the best results for both people and planet - and this has been proven in many cases of environmental management⁶⁶⁻⁶⁸.

Therefore, Manatū Mo te Taiao must prioritise actions, solutions, and projects led by tangata whenua in its advice on our climate response. There are numerous examples of indigenous leadership in conservation - the use of rāhui is perhaps the most well known. Te ao Māori recognises the interconnectedness, interdependencies, and whakapapa of te taiao and this holistic, systems-focused worldview leads to better success at protecting nature than what has historically been achieved with te ao Pākehā; this is true both nationally and worldwide when considering other indigenous knowledge systems.

We must empower tangata whenua to protect nature on their lands and in their rohe. As Māori recognise their aspirations and well-being are interdependent with ecosystems and ecosystem services, they are best placed to lead the rest of Aotearoa's society to a more sustainable and resilient future.

Climate Crisis: The Need for Transformation and Intergenerational Equity

It is clear that we are degrading the life-supporting capacity of the biosphere at a rate that is completely unsustainable. Ever more alarming predictions are being made on a seemingly weekly basis on the rising seas, increasing temperatures and altered weather patterns, with disturbing forecasts on human and nature impacts. Report after report has talked about the need for transformational action, yet we are still far from taking the substantial steps needed to safeguard our society.

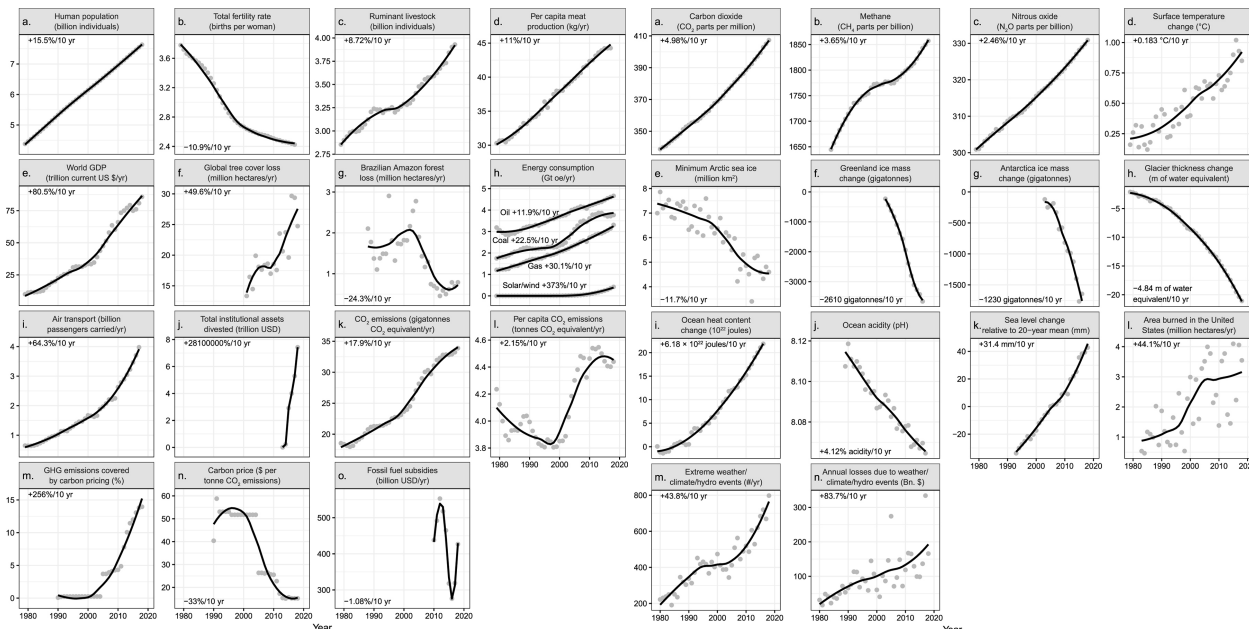


Figure 3. Some of the drivers and consequences of the Great Acceleration.

The pace of change in response to our rapidly degrading biosphere has been abysmal. As we edge closer and closer to the 1.5 and 2 degree goals set out in the Paris Agreement, the world remains in a state of paralysis. There are small signals of change, but the major drivers of environmental and societal degradation are not changing. For the sake of the planet and future generations, we are at a critical point in time where we can choose to take radical action now or put the future of human society at risk. This is why we must act now, with a just transition mindset, and ensure that Aotearoa operates within planetary boundaries while upholding its social foundations⁷⁰.

The decisions made today will place economic, social, and environmental debt onto future generations. Decision-makers need to engage with youth so they can have a say in the recovery effort. Recognising that young people are actors within society; have their own voices and concerns; and are knowledge-holders and innovators will allow for better policy development that improves intergenerational equity.

In particular, the younger representatives of our communities are facing disproportionate impacts from the risk of climate change and social and economic turmoil. The upheaval that will be faced by children and youth in coming years is unacceptable; they face greater vulnerability to health impacts from increased temperatures and unclean drinking water, as well as infections and lack of nutritious food. Reports show that 80% of illnesses and deaths from climate change are affecting young people⁸². Younger generations today and tomorrow will be feeling these burdens for the rest of their lives, whether we can overcome the climate and social inequity crises or not.

On top of these physical risks, the deterioration of mental health due to family pressures and lacking support systems may lead to severe, long-term psychological effects such as PTSD and anxiety⁸³. This has been shown to be caused by the traumas of forced relocation, social conflicts and increased economic burdens.

These factors must be addressed in a comprehensive fashion, to ensure the strength and resilience of our society as a whole. It has been recognised that the coming years will present many challenges to be faced, but our most vulnerable must not be neglected; dedicated support through health and well-being services, economic fall-backs and protection of the basic human rights must be provided consistently and with regard to an equitable transition.

We have seen evidence over hundreds of years that times of struggle and hardship have greatest impacts on women, minority groups, and those who are already inequitably impacted. In these times, we see both risk of further detriment to, and opportunity to improve the rights of, people who are impacted by sexism, racism, ableism, and other inequalities.

A further factor to consider is rising immigration rates into Aotearoa. With increased severity and risks from weather patterns, storms, and droughts, there will be significantly growing pressure for developed countries like New Zealand to welcome increasing numbers of climate refugees. This will be a critical step in being a responsible neighbour, particularly to the nearby, high-risk Pacific nations. However, this will require significant planning to consider growing numbers, likely in cities and urban centres⁹⁰. In particular, this will require consideration for the equitable and sustainable provision of housing, transport, education and health facilities.

Finally, there is significant evidence that, even if carbon emissions are reduced and rising temperatures combatted as planned, the challenges are certain to continue for many decades, centuries, or even millennia to come⁹¹. With growing data and more accurate predictions, it is critical that our young people, those who are destined to live with the consequences of our actions and deal with the challenges that will remain, are ready and able to do so. Education on climate change, along with the associated water, energy, and biodiversity crises, must be highlighted as a priority in our schooling systems⁹². The challenges we are facing will necessitate significant behaviour change from our communities, and it is crucial to embed this in the thinking of our developing society.

A Systems Perspective on Adaptation

The basis to all our proposed solutions and amendments is **reducing energy and material throughput as far as possible in human society**, and **learning from indigenous wisdom** to find innovative and meaningful ways of living with nature. Looking at the problem in this way - from a systems perspective - allows us to consider the many interconnections between the problems facing human civilisation and find solutions which do not create, or exacerbate, other problems.

Part of using a systems perspective is acknowledging that there are limits to growth - that the current economy and GDP are wholly reliant on growth in energy and materials⁷³. This has massive implications for the way we structure our society as it means that whether we choose to or not, we will have to find ways to live within these limits eventually. In particular, this reflects the distribution of cost on our communities, and suggests that our existing methods of covering these costs are flawed. A holistic view must be taken in the approach, with those who can afford it investing in our society as a whole. The benefits of the adaptation (and mitigation) approach will have wide-ranging impacts that will fluctuate between seen and unseen, recognised and indistinguishable. This means that we must work towards supporting and enhancing the lives of our wider community as a whole, for a better future for all.

Much of the theoretical work on restructuring our economies to fit within limits has already been done, and resulted in a burgeoning new field of economics known as “ecological economics”. The following principles for the use of resources and the amount of pollution we cause are a direct result of some of this work:

- Every renewable resource must be used at or below the rate at which it can regenerate itself e.g. soils, water, forests.
- Every nonrenewable resource must be used at or below the rate at which a renewable substitute can be developed e.g. fossil fuels, minerals - so that when it's depleted because of price or feasibility it can be replaced.
- Every pollution stream must be emitted at or below the rate at which it can be absorbed or made harmless.
- To be socially sustainable, capital stocks and resource flows must be equitably distributed and sufficient to provide a good life for everyone.

These principles recognise that we can create a system in which growth is no longer considered the main goal. An example of such a system is the doughnut model created by Kate Raworth⁷⁴.

Growth within limits doesn't mean no innovation or progress, just that these exist within boundaries. A great thought experiment is to imagine a child in their backyard with a fence versus one with no fence. The child exploring the fenced backyard can still create, innovate, and discover new things - within limits. Something to keep in mind, however, is that **the fence for human civilisation exists whether we acknowledge it or not**. It is imperative that we learn to live with nature in a reciprocal way just like indigenous knowledge systems have recognised for thousands of years.

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