

Discussion Paper 2023/01

BIG Ideas: Brief to the Incoming Government (B.I.G.)

LONG READ



MCGUINNESS INSTITUTE
TE HONONGA WAKA

Discussion Paper 2023/01

BIG Ideas: Brief to the Incoming Government (B.I.G.)

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Note: This version of *BIG Ideas: Brief to the Incoming Government (B.I.G.)* is the long read and includes references. For an overview, please see the short read, *Discussion Paper 2023/01 – BIG Ideas: Brief to the Incoming Government (B.I.G.)*.

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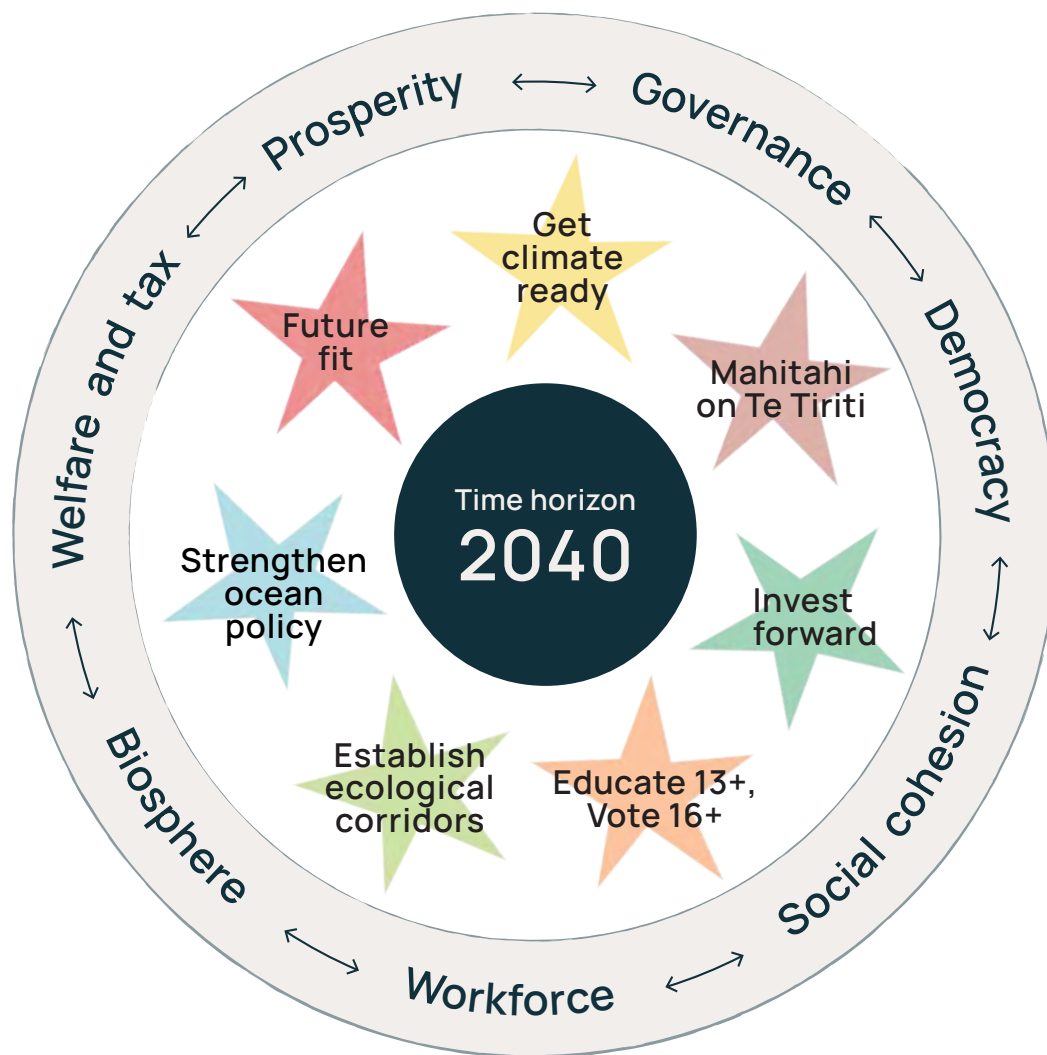
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7 BIG POLICY ACTIONS

	Get climate ready	Getting prepared: Everyone, everything and everywhere		Establish ecological corridors	Connecting conservation areas
	Mahitahi on Te Tiriti	Reimagining Te Tiriti relationships: Revisiting public policy and representation for Māori		Strengthen ocean policy	Rewilding the territorial sea and protecting our Exclusive Economic Zone
	Invest forward	Establishing a Mokopuna Fund, Universal Basic Services and Land Tax		Future fit	Designing our governance systems to achieve sustainable wellbeing
	Educate 13+, Vote 16+	Aligning consequences with influence			

Preface

'Expecting the unexpected' is part of my philosophy ... As we find ourselves confined today, all of us, from Nigeria to New Zealand, must realise that our destinies are intertwined whether we like it or not. This is the time for us to reconnect with our humanism. If we do not see humanity as a community with a shared destiny, we cannot exert pressure on our governments to take effective, innovative action.¹

– Edgar Morin (b. 1921), September 2020

In 2020, at the age of 99, French philosopher Edgar Morin hoped the COVID-19 pandemic might improve our understanding of science and teach us how to live with uncertainty and how to prepare for disasters, particularly those caused by biosphere degradation. He added, 'I have also observed that unbridled technical-economic development, driven by an insatiable thirst for profit and fostered by a global neo-liberal political climate, has become toxic, triggering all manner of crises.'²

Morin coined the term 'polycrisis', which is now in popular use.³ The World Economic Forum's *Global Risks Report 2023* described a polycrisis as 'a cluster of related global risks with compounding effects, such that the overall impact exceeds the sum of each part'.⁴ When a challenge becomes a crisis it is defined by scale, but when a crisis becomes a polycrisis it is defined by complexity. The ability to solve any one of the crises in a polycrisis is difficult, as a polycrisis is a connected mass of crises all impacting and amplifying each other. For example, challenges such as housing supply, cost of living, poverty and health are amplified by changes in climate.⁵

As we write this, our country is facing a crisis. The Auckland floods, followed shortly afterwards by Cyclone Gabrielle, have led to New Zealand's third ever national state of emergency under the Civil Defence Emergency Management Act 2002.⁶ The previous two were in March 2020 at the onset of the COVID-19 pandemic, and in February 2011 after the Christchurch earthquake.⁷

We question whether New Zealand is in the midst of a polycrisis, and, if so, what we can do about it. We are seeing system stresses and policy lags at a level we have not seen before. For example, in December 2020, New Zealand declared a climate emergency, but the latest cyclone has created a new form of climate urgency. Minister of Climate Change James Shaw noted during the cyclone that the country is entering a 'period of consequences', and decades of under-delivery and policy failure by successive governments is the root cause of the issue.⁸ We agree. The lack of a national resilience strategy, climate strategy and coherent macro system thinking means that we are still discounting the future in our decision-making processes (see, for example, the Parliamentary Commissioner for the Environment's report on discount rates⁹). We would argue that local authorities did not have the risk 'reduction' or 'readiness' capabilities to be ready for climate events (of scale) as central government had failed to get them ready, and the quality of the 'response' and 'recovery' process is still to be proven.¹⁰

Our only way forward is to do something significant.

We suggest doing something in the form of a polysolution – a package of BIG policy actions that have scale and together are able to 'shock' the emerging polycrisis with a diverse range of actions designed to slow, control and ideally reverse the mass of crises we face. This policy shock should be designed to bring Aotearoa New Zealand in line with our preferred future (see Figure 3). In this context, 'BIG' is a play on both the phrase Brief to the Incoming Government (B.I.G.) and the term 'BIG', in that the policy changes are of sufficient scale and size to deliver a polysolution (see terminology in Section 1.3.1).

This discussion paper suggests that Government should urgently focus all public policy on the year 2040 – because climate change impacts are expected by the Intergovernmental Panel on Climate Change (IPCC) to significantly impact our way of life around that time, and Te Tiriti bicentennial commemorations provide a time to reflect and create an enduring way forward. We need to ensure our assets and resources are well maintained and fit for purpose, and our mokopuna have the necessary skills, wisdom and character to become the stewards of Aotearoa New Zealand in the year 2040.

Importantly, this paper focused on collecting ideas, megatrends, and wild cards from patrons, rather than testing them. Section 1 provides an overview of the methodology, Section 2 sets the international and national context, Section 3 discusses factors that influenced the selection of BIG ideas, Section 4 describes the cross-cutting themes, goals and timelines, and Section 5 discusses seven BIG policy actions that list a wide range of ideas. Section 6 suggests a tentative checklist for successfully implementing BIG ideas. The Institute has also published a short read in hard copy, *Discussion Paper 2023/01 – BIG Ideas: Brief to the Incoming Government (B.I.G.)*.

The aim was to design a package of BIG policy actions for analysis by government and others that put people and the planet at the centre. The ideas are for consideration and debate, in the hope of contributing to a wider conversation about Aotearoa New Zealand’s long-term future. We acknowledge others will have their own ideas and solutions, have different perspectives on the scale and pace of change and have different views on the extent to which the current public service systems are designed to cope. For example, the patrons do not necessarily endorse every idea, proposal or perspective listed in this paper – and that is the beauty of this process. The funnel process, illustrated in Figure 1, enables ideas to come to the surface for discussion. It encourages critical thinking, a systems approach, design solutions, strategy mapping and open-ended conversations. Importantly, ideas should be collected well before they are assessed, analysed and costed, and decisions over funding and institutions are made.

The McGuinness Institute is non-partisan. This means our protocol is not to publish material in the vicinity of an election. For this reason, although the next incoming government is likely to be in place in October 2023 (six months away), we are releasing this paper in April to invite feedback at some distance from the election process. We hope it contributes to the important discussion on what next for public policy.

This paper could not have been prepared without the Institute’s patrons, Roger Dennis, Sue Elliott, Bronwyn Hayward, Mark Henaghan, Carwyn Jones, Girol Karacaoglu, Nikki Kaye, Elaina Lauaki-Vea, Ella Lawton, Trevor Moeke, Bill Moran, Claudia Orange, Michelle Pawson, Neville Peat, Jessica Prendergast, Mike Reid, Lachlan Rule, Diane Robertson, Conal Smith, and Morgan Williams (see map on the back cover). A number of patrons were unable to provide feedback due to recent weather events or work-related situations. In a few cases we sought advice on some specific policy actions, including from David Ermen on ecological corridors.

We would like to thank all the contributors for sharing their ideas and insights; however, we take full responsibility for its contents and any errors within. Thank you for your interest in this paper and the work of the Institute.

Ngā mihi



Dr Girol Karacaoglu
Patron

Wendy McGuinness
Chief Executive



1.0 Overview of methodology

Effective public management policies need clear problem diagnosis and outcome evaluation.

– *Modernising Government: The Way Forward*¹¹ (OECD, 2005, p. 13)

Throughout recent history, political and economic crises have provided catalysts for the introduction of major institutional transformations. We are facing a crisis of multiple dimensions: environmental, social, cultural, political and economic. It is time to reimagine governance. This requires a significant shift by government, one that places the future, and in particular the sustainable wellbeing of all living species – human and non-human – at the centre of public policy decision-making. To achieve this, it is time to think and act BIG again.

This discussion paper is a policy brief to the incoming government and Parliament; it is addressed to all Members of Parliament. It is intended to complement the standard portfolio-focused briefings to the incoming government prepared by government departments, by presenting a broader systemic set of perspectives and recommendations.

The brief has been prepared by an NGO (non-government organisation) by drawing on the wisdom of a large community of practically minded people who are immersed in their respective areas of passion and expertise. It provides the government with a status report on the threats and opportunities we face as a world and as a country, and proposes and suggests ways of responding to them. It invites Ministers and all Members of Parliament to think and act BIG.

This brief is not an academic piece. It presents a set of practical BIG ideas and BIG policy actions. To be a ‘BIG idea’, an idea needs to be novel, practical, actionable and scalable, to have a strategic impact and position the country well for the challenges and opportunities that lie ahead – both immediate and longer term. BIG policy actions are recalibrated BIG ideas.

Despite the large and hairy issues we face, 2023 is also a time for optimism. The world has responded to crises collaboratively before and come out better off. One example of communities working together to solve large global issues is the improving ozone layer, as stated in a 2023 UN report. In the 1970s, the ozone layer began to deplete, with a significant hole identified in 1985. In 1987, 46 countries signed the Montreal Protocol, promising to phase out chlorofluorocarbons (CFCs), the harmful chemicals often found in spray cans, fridges, foam insulation and air conditioners.¹² The UN reported that as of 2023, nearly 99% of these ozone-depleting substances have been phased out.¹³

We also have access to gradually improving technology which allows for collaboration and coordination across the world. Despite the issues we face now and in the future, this is an exciting time to be alive. We have an opportunity to make a difference, but we must start now and start strong – and think BIG.

In writing this discussion paper, the focus was on gathering and exploring ideas from McGuinness Institute patrons and others, in contrast to a focus on academic research. The aim is to identify a range of policy actions that might be helpful for politicians and officials to consider and implement over the next three years.

1.1 Background and context

In 2005, the OECD published a review titled *Modernising Government: The Way Forward*. The review sought to learn lessons from public service reforms from the mid-1980s onwards. The aim was to help ‘those involved with public management policy equip themselves for the future’.¹⁴ They identified six principal reform areas: open government; enhancing public sector performance; modernising accountability and control; reallocation and restructuring; the use of market-type mechanisms; and modernising public employment. The summary concluded:

Citizens’ expectations and demands of governments are growing, not diminishing: they expect openness, higher levels of service quality delivery, solutions to more complex problems, and the maintenance of existing social entitlements. Reforms to the public sector in the past 20 years have significantly improved efficiency, but governments of OECD countries now face a major challenge in finding new efficiency gains that will enable them to fund these growing demands on 21st century government. For the next 20 years, policy makers face hard political choices. Since most governments cannot increase their share of the economy, in some countries this will put pressure on entitlement programmes. These new demands on builders of public management systems will require leadership from officials with enhanced individual technical, managerial, and political capacities who think and plan collectively and who can work well with other actors.¹⁵

As we enter 2023, the world is embroiled in several serious crises. These include efforts (medical, social, and economic) to recover from COVID-19; increasing carbon emissions and the fight against climate change; biodiversity and ecosystem collapse; the cost-of-living crisis and corresponding global recession; increasing inflation; conflict between Russia and Ukraine and other geopolitical instability; food, water, and energy shortages; social inequality and political fragmentation; and the increasing frequency and intensity of natural disasters. For more information on the problem diagnosis, see Appendix 1: Issues shaping the public narrative – based on New Zealand media, patrons and international documents.

While all these challenges are, as they must be, top of mind for policy makers, they must be addressed without losing sight of the broader environmental, social, cultural, political, and economic dimensions of the wellbeing of New Zealanders, current and future. Consequently, policy makers should always seek a package of policy actions that not only address the immediate challenges we face as a country, but resolve those challenges in a way that enhances the long-term wellbeing of citizens.

1.2 Approach and outline

The analysis presented in this report has been informed by several sources: patrons of the McGuinness Institute; media reports and analyses of the immediate environmental, social, cultural, political, and economic issues we are facing as a country; Long-Term Insights Briefings (LTIBs) prepared by various government departments; long-term plans prepared by regional councils; material published by the Implementation Unit of the Department of the Prime Minister and Cabinet (DPMC); an exploration of BIG initiatives implemented by New Zealand governments

in the past; and readings of material published by international experts and institutions.

In preparing this discussion paper, we asked our patrons two questions: what are the main risks and opportunities we face as a country, and how should we respond to them? Appendix 1 includes the immediate challenges faced by New Zealanders that they identified, as well as challenges identified in media reports, and major trends and risks covered in international documents.

Section 2 of the paper provides a synopsis of what we have learned from international and national experience. We review the LTIBs prepared by government departments, the long-term plans prepared by regional councils, and material made public by the DPMC Implementation Unit. We also discuss the main institutions and policy interventions trialled in New Zealand during the 20th century, in response to major systemic social and economic challenges. Appendix 2 sets out a brief discussion on megatrends and wild cards.

Section 3 lists and briefly discusses the factors that influenced our selection of BIG ideas, and therefore might influence policy makers as they consider our suggestions. We share these insights as we acknowledge the significant degree of judgement required both in the selection and scoring of policy actions.

Section 4 lists and briefly discusses the cross-cutting themes that were identified as part of the selection process (see list in Appendix 1). The risks and concerns the patrons identified and their suggested policy responses are categorised into seven cross-cutting themes: governance, democracy, social cohesion, biosphere, workforce, welfare and tax, and prosperity. We were encouraged by the unsurprising observation that many of the concerns and opportunities identified by our patrons were very similar to the themes emerging from the international and national material.

Section 5 discusses the proposed seven BIG policy actions (the recalibrated BIG ideas). We present these in some detail, and then offer a qualitative assessment of their likely overall impact on the cross-cutting themes.

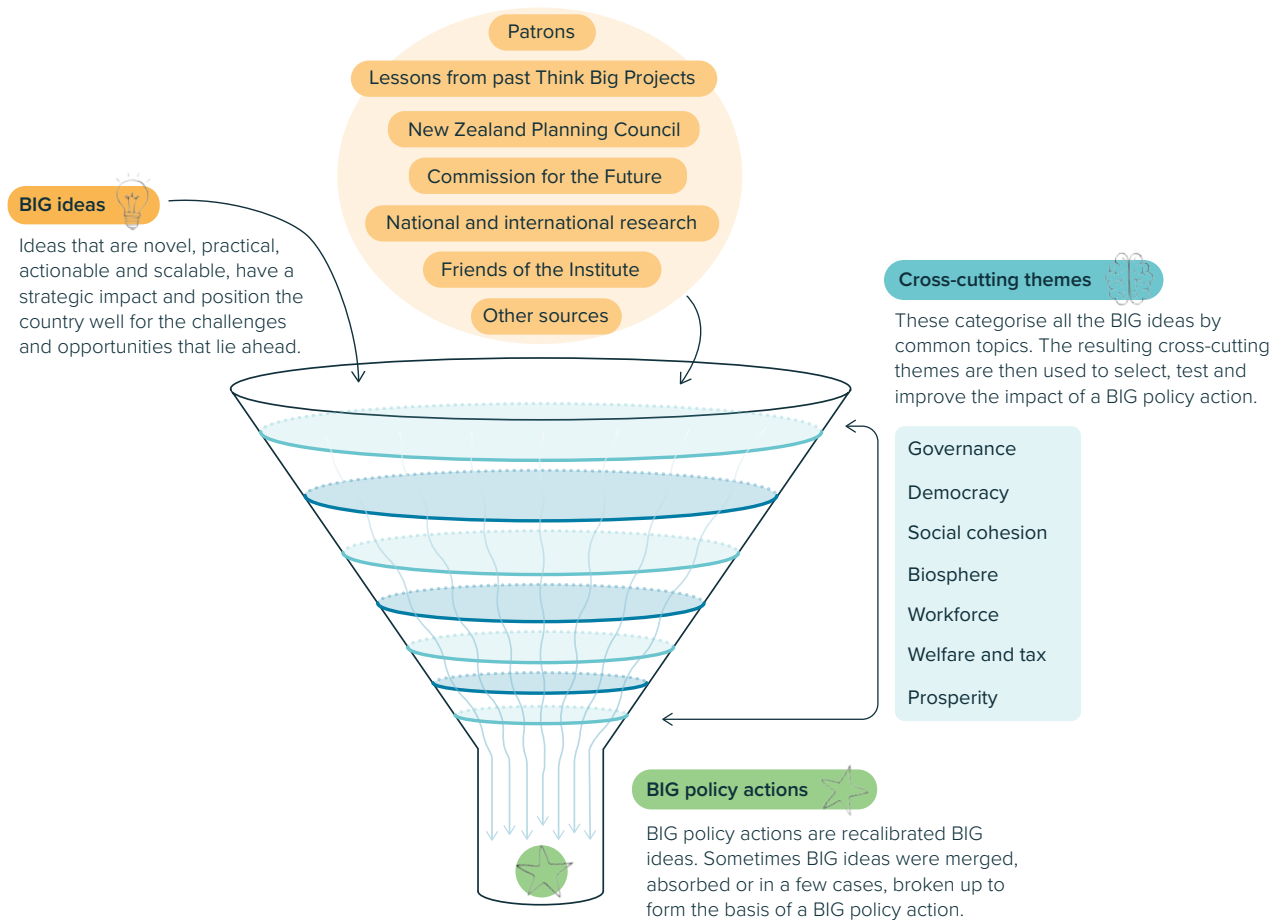
Having identified the factors likely to influence the selection process in Section 3, Section 6 puts forward a checklist for those tasked with implementing BIG policy actions, so that the policy actions enjoy an enduring 'shelf life'.

1.3 Method

1.3.1. What we did

The method we have applied in preparing this *Brief to the Incoming Government (B.I.G.)* is illustrated in Figure 1 (below). We describe our approach as a funnelling process.

Figure 1: Our method: the funnel



Ideas are thoughts or suggestions on a possible course of action. The ideas discussed below primarily came from patrons, who often directed us to a wide range of articles and reports.

BIG ideas are ideas that meet the following criteria. A BIG idea aims to be novel, practical, actionable and scalable, has a strategic impact and positions the country well for the challenges and opportunities that lie ahead. If an idea satisfied the criteria it was figuratively put into the funnel for further analysis (see Figure 1 above).

Cross-cutting themes allow us to examine and categorise all the BIG ideas by common issues or topics. They are called cross-cutting themes because the issues and topics intersect with a number of BIG ideas.

BIG policy actions are recalibrated BIG ideas. They are initially selected based on the patrons' insights into the main risks and opportunities we face as a country, and how we might respond to them. Sometimes BIG ideas were merged, absorbed or, in a few cases, broken up, to form the

basis of a BIG policy action. We then used cross-cutting themes as a way to test and potentially improve an idea's impact. The aim was to get as much value as possible from each policy action, shaping it in such a way that it maximises its impact across a range of themes (rather than just one or two).

In the last part of the funnel, we (i) recognised the intent of all the BIG ideas through the identification of the cross-cutting themes, (ii) selected a few BIG ideas, and lastly (iii) applied cross-cutting themes to optimise their potential impact – thus creating our recommended BIG policy actions. The goal of this process was to improve the strategic impact without losing the idea's initial purpose.

A key limitation of our approach was the level of judgement required. However, given the range of expertise and skills of the patrons, we felt the above process would deliver a package of policy actions that politicians, officials and the wider public might find useful.

1.3.2 What we found

The BIG ideas and seven cross-cutting themes were relatively quick to identify and generate. However, selecting and then recalibrating the BIG ideas to become BIG policy actions was difficult; some BIG ideas resonated and became policy actions, others did not. We found many ideas collided, merged or were absorbed by larger ideas while some simply 'stood their ground'. The latter in effect formed the basis of the seven BIG policy action recommendations, outlined in Section 5.

We concluded that the resulting policy actions together formed a package of broad and related actions rather than a sequence of actions. In other words, the proposed policy actions are intended to be integrated, systemic and long-term interventions, rather than isolated, fragmented and short-term.

We recognise that a complex system is reliant on intelligence gathering and assimilation in order to fully understand the latest information and ideas and respond accordingly. This means moving away from planning, and to some degree strategy, and instead focusing on building foresight intelligence, innovation capability and forward engagement.

We then reviewed and stress tested the chosen BIG policy actions. We asked ourselves what was driving our decision making and whether there was a unifying force or goal. We concluded that all the BIG policy actions were connected and that there was a unifying force – an urgent desire to get prepared, to retool New Zealand and re-skill New Zealanders, so they are ready for the challenges and opportunities that will exist in the year 2040.

The year 2040 is important because of two key events: Te Tiriti bicentennial commemorations and climate change impacts (2040 is when the IPCC expects the impacts to really begin to hit).¹⁶

How this impacts a 16-year-old in 2023 is important. In 2040 they will turn 33, and in 2072 they will retire (assuming the retirement age is 65). Allowing 16-year-olds to vote today is about aligning cause and effect; it matches the cause (our actions today) with the effect (the consequences of those decisions in the year 2040). The 33-year-old in 2040 will be ready to contribute and shape the future of the country. Figuratively we need the 16-year-old to move from the back seat of the car, sit in the passenger seat and get ready to sit in the driver's seat.

However, in terms of the public policy context, giving a 16-year-old the right to vote now is not the end of our responsibilities in 2023. For Aotearoa to be successful in 2040, we must also work on ensuring the wider support system is fit for purpose — fit for the projected population of 5.8 million in the year 2040 (0.9 million 1–14-year-olds, 1.8 million 15–39-year-olds, 1.8 million 40–64-year-olds and over 1.3 million citizens that are 65 and over).¹⁷

The level of work we need to do is overwhelming. Examples include an effective and trusted governance system, strong relationships with neighbouring and global nation states, a skilled and flexible workforce, a reliable infrastructure system able to deliver critical goods and services, and a healthy and self-sustaining natural environment. This is necessary so that society has sufficient food, cheap energy, safe housing and cost-effective transportation for all.

Lastly, we asked the question: how do we get momentum into policy making? We concluded that the government should focus policy development on the year 2040: all policy ideas, all decision making, all education, all government department strategies and all council plans should be required to consider the implications and possible impacts of decisions made today for citizens, flora and fauna in the year 2040.

2.0 International and national inputs

2.1 Introduction

As explained in the method (see Section 1.3) the inputs that have gone into the policy assessment and prioritisation ‘funnel’ have come from various sources. What follows in this section provides a synopsis of information distilled from international risk assessments and official New Zealand work – including some historical initiatives.

2.2 International inputs

The combination of complex and interrelated risks faced in 2023 has been referred to as a ‘polycrisis’ by the World Economic Forum (WEF) *Global Risks Report 2023*,¹⁸ reflective of the fact that we are facing ‘a cluster of related global risks with compounding effects, such that the overall impact exceeds the sum of each part’.¹⁹

A key observation of the WEF’s 2022–23 survey on perceived global risks is the increasing amount of environmental risks over the long-term. Looking out two years, participants identified only two out of the top five global risks as environmental, increasing to four of the top five global risks when considering a time frame of ten years. These top four were identified as failure to mitigate climate change, failure of climate change adaptation, natural disasters and extreme weather events, and biodiversity loss and ecosystem collapse.

This current ‘polycrisis’ highlights, more than ever, the need for global collaboration and forward-thinking public policy. Unfortunately, such complex and polarising issues have been met with increasing volatility in society, widening inequality and deepening societal divides. In particular, issues with energy supply, food scarcity, healthcare, mental health and the cost of living look likely to continue to result in increasing social fragmentation. These have the potential to lead to civil unrest, violence and political instability.

Societies and economies need robust public policy approaches and BIG ideas to respond to these crises and other potential risks. We need open critical discussion and an ability to look at issues from all angles. Some potential risks, such as nuclear warfare, social unrest, inflation and societal fragmentation, have been experienced in the past, whereas others, such as climate change, ecosystem collapse and technological warfare, have not been faced before. Beyond those we have identified, new and unforeseen risks will continue to arise in a future where, as Professor John Allen Paulos said, uncertainty is the only certainty.

The World Economic Forum notes that the need for a systemic view of and approach to global risks is reflected in the rising call for governments to appoint ‘National Risk and Resilience Officers, to mirror the increasingly important role of the Chief Risk Officer in the private sector. While the mandate of this role may vary in practice, it reflects the need for a cross-cutting and whole-of-society view regarding external risk foresight, mitigation and crisis management.’²⁰

The UK Government Office for Science (GOS) manages a programme of work that aims to develop civil servants’ ‘futures capability’. Sir Patrick Vallance, the UK Government Chief Scientific Adviser, notes that ‘[b]y routinely considering how the future may unfold, and proactively and

systematically incorporating our findings in our strategies and decisions, Government's policies will be more resilient and deliver long-term benefits more effectively'.²¹

In February 2023, the UK Government published a policy paper titled *Making Government Deliver for the British People: Updating the machinery of government for the world of today and of tomorrow*. It noted recent developments such as energy security, net zero by 2050 (which is creating new markets in renewables), nuclear and other technologies to decarbonise industry (to meet legally binding carbon reduction targets) and the central role played by science and technology. The paper goes on to acknowledge that '[i]ndividual departments, and the Government as a whole, have already been responding to these developments. But looking forward, it is clear that these trends will continue to demand greater engagement and effort – and so it will be vital in the months and years ahead that the machinery of government is set up to equip the right teams to focus on the right issues.'²²

2.3 National inputs: Current

2.3.1 Chief Executive Long-term Insights Briefings

Under Schedule 6 (clauses 8 and 9) of the Public Service Act 2020, chief executives of government departments are required to publish an LTIB at least once every three years. Importantly, these LTIBs are prepared and published by chief executives and are independent of the ministers they serve.

The LTIBs are not government policy, but are instead foresight pieces that are published by chief executives on a specific topic, including information about medium- and long-term trends, risks and opportunities that affect or may affect New Zealand and New Zealand society. The LTIBs must be made accessible to the public for consultation and the Chief Executive must take any feedback into account when preparing the final LTIB.²³

At the time of writing this paper, 12 LTIBs have been published as final and 7 are in progress. Figure 2 (overleaf) is a word cloud using subject headings of all 19 LTIBs to date (the size of each word does not correlate with the frequency of its use). Common topics are health, employment, productivity, education, and data. For example, the Ministry of Business, Innovation and Employment (MBIE), Ministry of Education (MoE), Ministry of Social Development (MSD), and Ministry for Women (MfW) have jointly prepared an LTIB that considers opportunities to improve the education and employment system in order to reduce barriers preventing young people from reaching employment goals and aspirations. Stats New Zealand's draft LTIB covers insights about the role of data in wellbeing and economic advantage. A number of drivers of change, both national and international, are discussed in the LTIBs: demographic shifts, rapid technological evolution, growing inequality, and climate change.

We have concerns that these documents are not of the quality they should be to provide the level of insight needed to navigate the volatile operating environment. The quality of these documents matter and are likely to depend on the curiosity, imagination, and foresight skills of chief executives. Malcolm Menzies, former chairperson of the now disestablished New Zealand Futures Trust,²⁴ undertook a preliminary review of the LTIBs process in 2022 and made a number of suggestions for improvement next time around:

on track, the Unit works alongside the relevant minister/agency to identify actions to get them back on track.²⁷

The Unit was modelled on the UK Prime Minister's Delivery Unit (PMDU), which was established in 2001 by the then Prime Minister Tony Blair and was influential until 2005.²⁸ The original PMDU had a focus on a small number of the Prime Minister's key priorities, a small unit (max 40 staff) and regular two- to three-monthly stocktake meetings with the Prime Minister. In 2022, researcher Dr Michelle Clement noted 'Prime ministers and their governments typically spend a great deal of time on policy – developing ideas, building support and then securing the passage of reforms through Parliament ... [b]ut governments often spend less time monitoring the implementation of reforms and problem-solving'.²⁹

The disparity between a focus on generating policy and pursuing outcomes can become a problem for a prime minister, yet the UK lacked a framework for ensuring delivery of outcomes until 2001.³⁰ By 2005 the Prime Minister's interest in the Unit waned due to other priorities, and when Gordon Brown became Prime Minister, he moved the Unit into Treasury. In 2021 Prime Minister Boris Johnson resurrected the PMDU, but that was short-lived.³¹

2.3.3 Regional council long-term plans

Section 93 of the Local Government Act 2002 sets out a requirement for local authorities (regional councils and territorial authorities) to produce a long-term plan looking out at least ten years. Under section 93(6)(d) local authorities are required to provide a long-term focus for their decisions and activities, and under section 93(6)(e) to provide a basis for accountability of the local authority to the community.

Of note, council plans are increasingly illustrating and applying the Community Wellbeing Framework, New Zealand Treasury's Living Standards Framework, and the wider United Nations Sustainable Development Goals. See, for example, the Canterbury Regional Council Long Term Plan (2021–2031).³² Government departments have no such requirement to think and plan ten years into the future and in so doing, to consult with the communities they aim to serve. Government planning in New Zealand lacks alignment, both in terms of horizons (e.g. some plans are three years, whereas others are ten years) and governance boundaries (see for example McGuinness Institute's 2016 infographic *Lines within New Zealand*).³³

2.4 National inputs: Historical

2.4.1 Ministry of Works (1876–1988)

This Ministry had several different names but the most well-known was the Ministry of Works (as it was renamed under the Ministry of Works Act 1943). During its existence, it undertook most major construction work in New Zealand, including roads and power stations. The Ministry had its own Minister of Works in Cabinet. In 1984, the Ministry was dissolved as part of the state sector reforms. It was officially abolished in 1988 by the Ministry of Works and Development Act 1988.^{34,35}

During the latter years the Ministry had over 6000 staff located in seven district offices (Auckland, Hamilton, Whanganui, Napier, Wellington, Christchurch and Dunedin), which were each headed by a District Commissioner of Works.³⁶ Each district had a number of residency offices (headed by a resident engineer) and each residency office had a number of depots. This was a large ministry focused on long-term projects for the benefit of the country. Given our current infrastructure gaps, many believe establishing a modern Ministry of Works is worthy of consideration.³⁷

2.4.2 Muldoon’s Think Big projects (from late 1970s)

‘Think Big’ was a term coined by National Cabinet Minister Allan Highet. It referred to a package of publicly funded energy-related projects conceived in 1978 by the then Minister of Energy, Bill Birch. Birch saw the reserves of natural gas sitting under Taranaki as a means to restart the failing economy, reduce the country’s reliance on overseas energy and correct a perceived agricultural bias in the economy.³⁸ The 1973 energy crisis, the 1978–79 oil-supply crisis and rampant inflation combined with Britain joining the EU (leaving New Zealand without its biggest export market) had left New Zealand economically weak and in need of a new strategy.

The National Development Act 1979 was Prime Minister Robert Muldoon’s solution; it allowed the government to implement its new Think Big public policy with speed, and often without public consultation or transparency. The result was a lack of trust that negatively affected the government’s popularity. The projects (see list below) went significantly over budget, pushing the country further into debt.

However, author Brad Tattersfield, in his 2020 biography of Birch, notes that although the Think Big projects created debt, the assets are still serving New Zealand: ‘All the major Think Big plants are still operating today, earning literally billions of dollars in foreign exchange’, and ‘[t]he country is still benefiting from Think Big jobs, manufacturing expertise, royalties and tax receipts.’³⁹

The Think Big projects included:

Methanol plant	Waitara, Taranaki
Ammonia/urea plant	Kāpuni, Taranaki
Synthetic-petrol plant	Motunui, Taranaki
Expansion of the Marsden Point Oil refinery	Marsden Point, Northland
Expansion of the New Zealand Steel plant	Glenbrook, Auckland
Electrification of the North Island Main Trunk Railway between Te Rapa and Palmerston North	North Island
A third reduction line at the Tiwai Point aluminium smelter	Bluff, Southland
Clyde Dam	Clutha River, Central Otago

Think Big projects evolved from a situation of economic desperation and supply-chain risk, not unlike the situation today. The solution was arguably narrow in focus (exploration of natural resources), lacked integration and systemic thinking beyond core economic drivers, and failed to deliver effective and timely management systems (cost overruns suggest failures in critical financial analysis, effective fiscal controls, and timely reporting).

Most importantly, many consider the Think Big projects were pushed onto the general public before they were fully stress-tested or adequate checks and balances were put in place to ensure they were good value for money. The passing of the Act delivered a short-term public policy shock that undermined public support for Muldoon and his government. Poor financial management and growing international debt led to other unpopular responses (such as price controls), undermining public trust even further. The Act was repealed in 1986.

Importantly, there are some positive lessons. Think Big had scale, was innovative (e.g. developing new skills and bringing existing expertise from overseas), and with its geographical coverage, delivered economic and social benefits to some of the more challenged parts of New Zealand. Many of the projects did solve energy supply issues and continue to deliver New Zealanders long-term benefits today.

Arguably, sometimes doing nothing, or undertaking very small tweaks, is not appropriate to the times. It is clear that the challenges in 1978–79 were extreme, and with no clear solution easily apparent, Think Big may have seemed the only way to move the country forward.

2.4.3 New Zealand Planning Council and Commission for the Future (1976–1991)

Two years prior to Muldoon's implementation of the National Development Act 1979, the New Zealand Planning Act 1977 was passed in response to the emerging international economy that called for a focus on development economics. It was under this Act that the New Zealand Planning Council and the Commission for the Future were founded to look into various medium- to long-term possibilities for the economic, social and cultural development of New Zealand. They remain New Zealand's only attempt at cohesive, formalised, whole-of-government strategic planning.

Through its short existence from 1976 until 1982, the Commission attempted to understand the future rather than predict it. This, coupled with the active involvement of different interested parties, including the public, encouraged anticipatory thinking and planning, taking into account long-term probabilities and alternatives.⁴⁰

In contrast to the Commission's six-year lifespan, the Planning Council existed until 1991 and produced numerous reports, which covered a broad range of areas and issues relevant to medium-term policy and fostered wide consideration and public debate. At the time, futures thinking tended to involve experts operating in a siloed manner, resulting in findings that didn't necessarily produce broader impacts. The Planning Council aimed to avoid this by connecting with community groups relevant to the matters at hand – for example, their implementation of a Māori round-table within the Council itself. This resulted in the integration of planning and discussion of future issues within the broader community, the mainstream policy-making arena, and New Zealand in general.⁴¹

Centralised, government-funded organisations focusing on future planning, and existing in a healthy democracy, have the ability to question the status quo and challenge the government to address tough issues relating to long-term sustainability. If a similar foresight organisation were to be established again, it would be important to ensure that the structure and terms of reference were sufficiently robust and independent of government, that a Minister was responsible for nurturing and protecting it, and funding was sufficiently secure to enable effective dialogue on long-term challenges without being restricted by short-term political goals. This is especially important given New Zealand's short electoral cycle, which can impede the longevity of positive outcomes and limit the extent to which outcomes can be achieved.

3.0 Factors that influenced our selection of BIG ideas

3.1 Introduction

The BIG policy actions that a Minister, policy analyst or citizen might prefer are likely to depend on a wide range of issues, including their diagnosis of the problem, its perceived urgency, the extent of available resources, their level of expertise, their risk appetite and their values and beliefs. In other words, the policy response decision-making process for one person (or political party) may be very different from another.

Governments will select policy responses based on a number of underlying decisions or beliefs. Below are a list of factors that became apparent upon preparing this paper.

3.2 Key factors

3.2.1 Resilience versus antifragility

The National Research Council defines ‘resilience’ as the ‘ability to prepare and plan for, absorb, recover from, and more successfully adapt to adverse events’.⁴² Thus, resilience has two complementary dimensions: the ability to ‘absorb shocks’, and the ability to ‘recover from shocks’ (but not necessarily by returning to the same state we were in before the shock). In other words, to survive and to thrive.

‘Antifragility’ offers a more positive and optimistic platform, building on the ‘recover dimension’ of resilience – it suggests we embrace radical uncertainty as an opportunity to improve our situation.^{43,44} This requires a massive change in mindset by the public at large as well as by policy makers. One of its core platforms would be to embrace and deliberately nourish diversity, in all its dimensions, as a source of creativity, innovation and social cohesion.

Our selection process focused on ways we might embrace antifragility.

3.2.2 Balancing caution with courage

Caution alone will not create prosperity; we need to complement (not replace) caution with courage. Both have a critical role to play in selecting a public policy.

Public policy, for example, should provide a bridge between long-term development and finance. Innovation-supporting investment needs a long-term commitment, supported by ‘patient finance’, as well as an appetite for risk-taking in the face of ‘radical uncertainty’. This is especially the case when talking about transformative infrastructure investments, such as those supporting ‘green growth’, nanotechnology, biotechnology, and so on. These are the circumstances where the state has to lead (and has historically done so), and only then does the private sector (including venture capital) follow.⁴⁵ As economist Mariana Mazzucato has forcefully argued, ‘Most of the radical, revolutionary innovations that have fueled the dynamics of capitalism – from railroads to

the Internet, to modern-day nanotechnology and pharmaceuticals – trace the most courageous, early and capital-intensive ‘entrepreneurial’ investments back to the State’.⁴⁶

The successes of countries such as Denmark and Sweden showcase the way forward. If we can combine freedoms of all sorts – including those that unleash the creative forces of markets – with regulations, incentives and various types of social insurance provided through collaborations between government, communities (including civil society) and business, we can enjoy material prosperity without compromising equity or the health of the biosphere. We need the government, in its dual capacities as both a long-term ‘investor’ and as an ‘insurer’ against systemic and transition risks, to partner with private business to expand and enhance the wellbeing-expanding opportunities of the economy on a sustained basis.⁴⁷

Our selection process aimed to take a calculated risk. This means focusing on identifying the risks, costs and benefits, minimising the risks, maximising the benefits, assessing the risk against the benefits, embedding regular and milestone reviews, developing a plan B, and if the risk is worth it, then being courageous. If it fails, let it fail fast and move on to plan B.

3.2.3 Balancing the short with the long term

Given the long list of immediate social and economic pressures that our society is facing (see, for example, the list in Appendix 1) and the three-year election cycle, it is almost impossible for the current government to focus on long-term environmental, social, cultural, political, and economic challenges and opportunities – especially those of an intergenerational nature. Naturally, the energies of the public sector, as advisers to the current government, are also concentrated, disproportionately, on advising the government on how to deal with immediate challenges with a view to delivering outcomes in the short term.

Consider the housing shortage as an example. The current Government would like to provide a much larger quantity of adequate and affordable housing to the population at large, in a timely and cost-effective manner; however, the environmental impact of how and where these houses are built must also be taken into account. In principle, and based on available scientific knowledge and expertise, there are ways of providing socially fit-for-purpose and environmentally friendly housing. However, political pressures and bureaucratic obstacles incentivise fast-track solutions that may compromise these wider and longer-term concerns.

In principle, Parliament, in its stewardship role, should be holding governments responsible and accountable for addressing social and economic needs without compromising intergenerational justice and wellbeing. However, in our unicameral governance system, Parliament itself is under the same political pressures as the government of the day. That is precisely why we need to reimagine governance and ensure it is fit for purpose – the purpose of caring for the wellbeing of both current and future generations in a fair and sustainable manner. This led to the BIG policy action: future fit.

Our selection process aimed to prioritise policies that are future fit, while preserving citizens’ current wellbeing. Government will need to consult on ideas and communicate decisions in such a way that it retains its social licence to operate.

3.2.4 Balancing the urgent with the important

A variation on the short-/long-term theme is finding the appropriate balance between the urgent and the important.

The issues we face in 2023 demonstrate the risks of public policy focusing on what is politically popular rather than what is socially and economically necessary. There is no denying the urgency of the immediate environmental, social, cultural, political, and economic challenges we face (see Appendix 1). Nevertheless, there are very high risks associated with focusing exclusively on the current crises and searching for immediate solutions for them, while neglecting the longer-term issues.

For example, COVID-19 and the economy dominated the political discourse in 2022; however, the climate continued to deteriorate. As reported by NIWA, 2022 was New Zealand's warmest year on record, beating the previous record set in 2021 by 0.2°C – a significant increase. The top four warmest years recorded by NIWA have all occurred since 2016.⁴⁸ As we go to print, Cyclone Gabrielle has claimed 11 lives and resulted in significant insurance costs.⁴⁹

Another recent example is the cost-of-living crisis. There is a risk of responding with one-off cash payments (buying time) while neglecting other issues, such as wild weather, soil erosion, water quality and quantity, waterway pollution and wastewater. The farming community has an important role in the supply of cheap and nutritious food; however, its role is often missed in the policy narrative. Food is clearly part of the solution. However, food supply (in particular traditional food supply, such as hunting and fishing) is dependent on the quality of our environment; any negative impact on the environment will impact our ability to feed those who are financially challenged.⁵⁰

Our selection process was to prioritise the important, so that long-term gains are identified and bedded into the system. This means when addressing the urgent, we need to also take into account the important. See also Sections 3.2.1 and 3.2.3.

3.2.5 Large versus small government

One of the main threads of the political, philosophical, and economic discourse on public policy is the debate about preferences for 'small' versus 'large' government. The question then for every political party is, what services (e.g. energy projects, insurance, poverty reduction initiatives) should be contracted, delivered and funded by government, and what should be left to the market (i.e. the private sector)? Although this debate can be dismissed as ideological, it is in practice fundamental to the way governments govern and businesses operate.

Addressing our biggest challenges will require a completely new policy-making paradigm, one that looks past the old arguments about the supposed inherent limits of government, and the dichotomy between the public and private sectors. Government (at all levels), markets, and community organisations must be treated as complementary institutions and genuine partners. Enabling collaboration to develop and flourish is likely to be the most distinctive aspect of any new governance model – we need to reimagine and retool governance to achieve it.

In making these choices about appropriate division of labour and associated responsibilities between different levels of governance, as well as communities and business, 'lack of capability'

should not be used as a reason for delaying progress. As Rodrik (2022) stresses, an ‘accurate account of government capabilities recognizes that they are neither inherited nor static. Rather, once appropriate priorities have been set, capabilities develop over time through experience, learning, and trust-building with private entities. For public officials, the relevant question is not “Do we have the capacity?” but, “Have we established the right priorities and the correct mode of governance?”’⁵¹

Our selection process was to reimagine the type of entity best placed to deliver the public good or service. For example, climate change may result in central government becoming smaller in order for local government to become bigger. Local responses to a disaster will require an urgent and comprehensive response by people on the ground. Furthermore, given our geography, local communities may need to support each other for many days before they can obtain support from central government agencies. It is about the machinery of government being fit for purpose, in terms of our current and future needs.

3.2.6 Connecting the disconnected – leaving no one behind

Giving top priority to a ‘leave no one behind’ strategy provides an essential platform for the sustainable wellbeing of the citizens of a country, current and future. Economist and author of *Why Nations Fail* Daron Acemoglu reminds us that a mobilised, politically active society is crucial.

Many current social problems are rooted in our neglect of the democratic process. The solution isn’t to dribble out enough crumbs to keep people at home, distracted, and otherwise pacified. Rather, we need to rejuvenate democratic politics, boost civic involvement, and seek collective solutions. Only with a mobilized, politically active society can we build the institutions we need for shared prosperity in the future, while protecting the most disadvantaged among us.⁵²

For example, imagine a number of different stakeholders in a private company. They may be workers in the company, hold management positions, be shareholders, and/or may have lent the company funds. This company has demonstrated that it cares deeply about its employees. It has established a creche for the children of its employees, and has a hospital and medical centre that looks after them when they are unwell. It also has a retirement home where employees can live after retirement (should they choose to do so). Workers and managers have an effective voice at the company Board table, through membership or other forms of representation. As stakeholders they are truly ‘invested’ in this company, they care deeply about its performance and want it to do well. Therefore they would do their best to support it because when the company does well, they do well, whatever stage of life they are in.

That is precisely what we wish to achieve with our citizens: each citizen should be a stakeholder in the country in which they live. We want them to be invested in how the country is feeling and do their best for the wellbeing of the whole country, because when the country is doing well, everyone does well. In such a country, each citizen would be intensely interested in how the government at all levels is performing, the quality of the natural environment, living at peace with each other, and the country’s economic performance – because the country’s success affects them, as individuals, as families, and as communities.

As Colin Crouch expresses it:

Democracy thrives when there are major opportunities for the mass of ordinary people to participate, through discussion and autonomous organizations, in shaping the agenda of public life, and when they are actively using these opportunities.⁵³

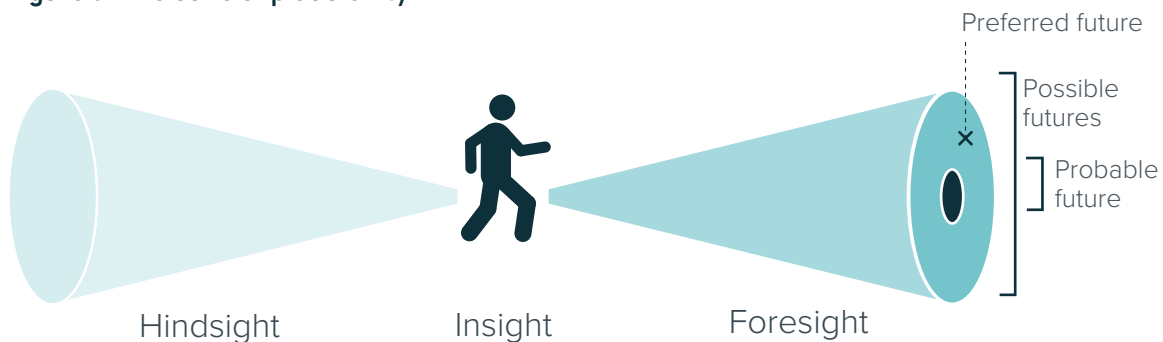
Broadening the availability of such opportunities and capabilities helps increase equity and social cohesion, increasing potential prosperity and resilience, as well as directly reducing environmental degradation (because poverty is one of the major challenges to creating a healthy environment). (See discussion in Section 3.2.4 above.)

Our selection process focused on being inclusive and ensuring our policy response builds, rather than damages, social cohesion.

3.2.7 Balancing hindsight, insight and foresight

The cone of plausibility in Figure 3 (below) illustrates the relationship between hindsight, insight and foresight and distinguishes between possible, probable and preferred futures.

Figure 3: The cone of plausibility



In a fast-paced and complex world, it is crucial to remain curious and open to new information and possibilities and watch for blind spots or biases. As noted earlier, time taken planning, and in some cases developing strategy, may be better spent seeking out wild cards, looking for emerging trends or analysing the direction and pace of current trends (see discussion in Appendix 2).

Our selection process focused on learning lessons from the past, stress testing the present and studying the future (while being careful not to focus on a preferred future).

3.2.8 Shallow work versus deep work

Cal Newport coined the term ‘deep work’ on his popular blog, Study Hacks, in 2012. Newport went on to research the methods and mindset that foster a practice of distraction-free productivity at work, and discussed his conclusions in his book *Deep Work: Rules for Focused Success in a Distracted World*.

Despite its best intentions, the public sector is always distracted by the immediate pressures and challenges faced, often under immense pressure from the government of the day. However, commissioners created by Parliament, such as the Parliamentary Commissioner for the Environment, are able to focus exclusively on their respective areas of work.

In summary, we need to create and resource independent institutions that can think deeply and broadly in a distracted world (e.g. modern versions of the New Zealand Planning Council). These institutions should be seen as trusted partners by the public sector and trusted sources of analysis by the wider public (including, in particular, the media). They need to draw on all sources of expertise from around Aotearoa New Zealand and the world, in helping us think about and respond to emerging environmental, social, cultural, political, and economic challenges. This would be one of the most effective and efficient ways of investing in ‘antifragility’.

Our selection process focused on reconsidering the types of institutions that will be needed to solve existing risks and challenges, and take advantage of emerging opportunities. The aim was to strengthen existing institutions as well as identifying new institutions and instruments. We imagined a network of independent, government-established and -funded, deep-work institutions, which met regularly and shared their ideas and thoughts with each other, Parliament, officials and the wider public.

4.0 Cross-cutting themes, goals and timelines

4.1 Introduction

In preparing this paper, we asked our patrons two questions: what are the main risks and opportunities we face as a country, and how should we respond to them?

Their answers to the first question are discussed in Sections 2 and 3, and the appendices.

Their answers to the second question led to a long list of ideas, which were rewritten into a series of brief goals below. Each goal was given a time frame to indicate when it might tentatively be achieved:

- Short term (ST): 1–4 years
- Medium term (MT): 5–9 years
- Long term (LT): 10–20 years
- Ongoing

Where a common topic or thread cut across a number of BIG ideas (or goals), the topic or thread was called a cross-cutting theme.

Seven cross-cutting themes were identified: governance challenges, threats to democracy, ensuring social cohesion, stresses on the biosphere, challenges and opportunities associated with our workforce, opportunities to enhance our welfare and tax system, and opportunities to improve our prosperity. Each is discussed briefly below.

4.2 Seven cross-cutting themes

Cross-cutting theme #1: Governance

Creating public institutions that are focused on sustainable wellbeing through stewardship, adopting and applying a systems view, actively involving citizens in creating a shared narrative on what kind of society we aspire to be, and focusing on making sure that governments are accountable for designing, and effectively and efficiently implementing, policies that align with sustainable wellbeing.

- Goal 1.1** Follow inclusive processes to develop a unanimously shared (across Parliament) narrative (including an implicit social contract covering rights as well as responsibilities) on who we are and how we wish to live as a nation. Best practice examples include Wales (e.g. The Well-being of Future Generations Act 2015) and Portugal (where the President has been leading the transformation of the public conversation).⁵⁴ (ST)
-
- Goal 1.2** Reimagine co-governance across different layers/levels of governance. For each good or service that has public good characteristics, start by asking which level of governance is best suited to lead the delivery of which component of the service – be it health, education, water services – and how the private sector will contribute as well. Ensure that revenue sources and accountability measures are in place that are aligned with the allocation of governance and government responsibilities.⁵⁵ (MT)
-
- Goal 1.3** Begin preparations for 2040 Te Tiriti centenary celebrations. Early engagement and transparent and trusted processes are critically important. These could be facilitated by a non-partisan leadership. Perhaps a government organisation, such as a subcommittee of the Parliamentary Service Commission, could collect, research and report on lessons and ideas. There are positive and negative lessons to be identified and understood in regard to the 1940 Te Tiriti celebrations and the Tuia – Encounters 250 commemorations held in Gisborne (which celebrated the Polynesian voyaging tradition, the beginning of Polynesian settlement of Aotearoa, and the meeting of Māori and Pākehā on land 250 years ago). (MT)
-
- Goal 1.4** Use the Review into the Future for Local Government as a catalyst for reimagining and reshaping the complementary roles and revenue sources for local, regional and central government. (ST)
-
- Goal 1.5** Follow the Auditor-General’s recommendations to enhance the transparency of and accountability for government spending through changes to the Public Finance Act 1989. (MT)
-

Goal 1.6	Invest in the New Zealand Treasury’s existing CBAX tool to make it more suitable for systemic assessments of the wellbeing costs and benefits of policy changes. (MT)
Goal 1.7	Move from consultation to collaboration through co-design, collaborative governance, and citizens’ juries or assemblies. (ST)
Goal 1.8	Encourage, enable and support active citizenship (through all means, including technology). Use the 11 Regional Public Service Commissioners, covering 15 regions across New Zealand, ⁵⁶ to engage with local communities (including local government, iwi, hapū, whānau organisations, NGOs, etc) to hear what the community needs and wants from public services, and share this information with central government. (MT)
Goal 1.9	Establish a ‘foresight review service’ to test public policy from a length of work perspective. Department heads could create a cohort of employees (ages 18–25 years) to test public policy ideas from the perspective of end of career, when they turn 65 (i.e. 40–47 years into the future). A group of the cohort would be brought together to test policy ideas and report their thoughts to the CE in a brief report. This could be similar to a form of jury service, but instead of being used by the judiciary to test the values and expectations of society it would be a tool used by department heads to test public policy from a long-term perspective. The resulting brief report would belong to the CE but could be shared with the Minister or other department heads. Department heads could invite other department heads to provide staff from their cohort to improve communication across the system, and integrate the public service. (ST)

Cross-cutting theme #2: Democracy

Protecting and enhancing democracy to move towards greater public participation in decision-making.

-
- Goal 2.1** Enable active citizenship: public participation in government into the future. Actively engage with all stakeholders (iwi, NGOs, scientists, business, and government at all levels) to raise awareness of mis- and dis-information, and agree on strategies to deal with emerging challenges and opportunities. (MT)
-
- Goal 2.2** Enable and enhance community participation and decision-making through the use of technology – towards serving and connecting people, communities and government to build a safe, prosperous, respected nation. This could be led by the Department of Internal Affairs (DIA). (ST)
-
- Goal 2.3** Reduce the voting age to 16. (MT)
-
- Goal 2.4** Teach civics in schools. Whether the voting age changes to 16 or not, we need well-informed young people involved in our democratic processes. (ST)
-
- Goal 2.5** Extend our Parliamentary term from three to four years. Three years makes it difficult to achieve anything meaningful. (MT)

Cross-cutting theme #3: Social cohesion

Embracing and celebrating diversity as a platform for stability, resilience, and creativity and investing in ‘bridging social capital’ (i.e. investing in ways to connect and link people who are typically divided by issues of race, class or religion).

Goal 3.1 Engage an increasingly diverse Aotearoa New Zealand in conversations around national security risks, challenges and opportunities. This could be led by DPMC, DIA and Police. (ST)

Goal 3.2 Support specific communities to engage with the political process in ways that suit them: migrants, young people, disabled people, Māori and Pasifika. This could be led by local and regional government. (ST)

Goal 3.3 Encourage and support local government to create spaces and opportunities for people from all backgrounds to live in integrated communities, go to school together, play together, create together, sing together. (ST)

Goal 3.4 Control the negative and pervasive influence of social media on social cohesion. One of the patrons suggested that social media is to social capital what the chainsaw is to a rainforest – a way of converting a public good into a private income stream, eliminating the underlying capital stock in the process. This goal complements and reinforces Goal 2.1 as it relates to democracy, especially the point emphasised there about the risks of mis- and dis-information. (ST)

Cross-cutting theme #4: Biosphere

Protecting and improving the health of the biosphere to reduce vulnerability to climate-related and natural disasters, while not compromising short-term wellbeing objectives.

Goal 4.1 Align the education system with our shared narrative on the critical influence of a healthy biosphere or our sustained wellbeing, in particular through environmental education. (MT)

Goal 4.2 Empower and resource communities to drive sustainable use of land and oceans. (MT)

Goal 4.3 Align, and prioritise, infrastructure investments with the desire to eventually switch all production and consumption to biosphere-friendly products and services (i.e. a circular economy). (LT)

Goal 4.4 Use every opportunity that presents itself, such as the review of the Resource Management Act 1991 (RMA) and Three Waters, as catalysts for exploring, first, what we collectively wish to achieve as a nation (and link this back to the healthy biosphere narrative), and second, how we can get there in an efficient and fair way (i.e. engineering a just transition). (Ongoing)

Goal 4.5 Climate adaptation: (MT)

- Establish a new unit in central government to work closely with local government to prioritise construction of sea defences for long-term protection from sea-level rise (rock rip-rap, pumps, pipes, ponds) – or, if necessary, managed retreat.
 - Implement a programme of financial assistance (in collaboration with councils, banks and the insurance industry) to cover adaptation costs, ensuring the least-resourced councils are not left behind and adaptation work is not piecemeal.
 - Require councils with sea coasts to prepare shoreline management plans backed up by LiDAR surveys.⁵⁷
-

Goal 4.6 Biodiversity: (MT)

- Increase funding for the Predator-free New Zealand 2050 programme.
- Increase funding for Department of Conservation (DOC) ecosystems and pest control work.
- The Jobs for Nature programme was successful during COVID-19 and could be established long-term to create jobs and link communities to biodiversity outcomes.
- Establish ecological corridors between conservation areas.
- Expedite predator-free status for islands such as Rakiura Stewart, Aotea Great Barrier and Resolution, which already have head starts and could become models for how to tackle mainland animal pest eradication.

Goal 4.7 Implement electric-powered transport options. For many years we have had electrically powered trains, initially from overhead wires. Hydrogen-powered trains are already operating in other countries. KiwiRail has been developing high-level feasibility cases for electrifying the remaining segments of the North Island Main Trunk and East Coast Main Trunk. The vast majority of the North Island rail freight traverses these two mainline routes. These routes provide for freight connectivity between Auckland, Hamilton, Tauranga and Wellington and can easily be leveraged for passenger rail operation. (MT)

Goal 4.8 Adopt a de-growth approach. Current thinking on de-growth is crucial information for politicians, political parties and policy analysts to have in advance of the upcoming election. Shortfalls in the wellbeing economy and increasing environmental degradation are becoming an ever greater concern to a growing number of New Zealanders who are looking for change beyond the incremental — and a vision to go with it. De-growth aims to directly address key social and environmental concerns as a systemic response. Indirectly, Europe is thinking ahead on de-growth. As a key market, this is a strategic concern for New Zealand. Adopting a de-growth lens, alongside a growth lens, would help build resilience into policy-making. (MT)

Cross-cutting theme #5: Workforce

Investing in growing, attracting, retaining and connecting talent to create a future where infrastructure is biosphere-friendly and the workforce is skilled and thriving.

-
- Goal 5.1** Agree on the types of infrastructure that will be required to underpin and support the switch of all types of production towards biosphere-friendly technologies. To achieve this, central government should lead engagements with the business sector at large, local and regional governments, and communities. (ST)
-
- Goal 5.2** Develop a skilling and re-skilling strategy, in consultation with business and training institutions, to support this transition. (ST, MT)
-
- Goal 5.3** Undertake jointly governed and funded investments in infrastructure and skills to ensure a pipeline of skilled labour for the future. (MT)
-
- Goal 5.4** Prepare all young people for satisfying and rewarding working lives. In partnership with the business community, improve education and employment system responses to support youth employment outcomes in the medium and long term. See, for example, the Swiss upper secondary education system.⁵⁸ (MT)
-
- Goal 5.5** Complement the focus on redistribution, social transfers, and macroeconomic management (through better coordination of monetary and fiscal policy, using the Council of Financial Regulators as a vehicle), with supply-side partnerships between government at all levels, business and communities to create skilled jobs as an integral part of our gradual transition to biosphere-friendly industries. Evidence shows that pre-distribution strategies through investments in upskilling, leading to productive employment, offer a far more inclusive and sustainable platform for sustained prosperity. (Ongoing)
-
- Goal 5.6** Ensure all major transformative strategies are accompanied by jointly developed fair and efficient transition plans involving all stakeholders. (MT)
-
- Goal 5.7** Use government at all levels as employers of last resort. (Ongoing)
-
- Goal 5.8** Align the immigration system with the short- and long-term labour, skills, capital, and international networks needs of the country. (MT)
-
- Goal 5.9** Establish ‘action labs’ in major cities, within regional councils. These provide a creative and interactive environment for addressing complex but specific challenges, working with teams of individuals with diverse backgrounds and expertise. Ideally, this will be organised by the strategy units of the regional councils, drawing on academics and private and public sector professionals – especially young people. The idea is to start with an apparently intractable issue and end with concrete action plans and renewed energy and curiosity. An ‘adaptive action lab’ does not provide training as such; participants make real progress on their real work challenges. (ST)

Cross-cutting theme #6: Welfare and tax

Creating effective and equitable welfare and taxation that is transparent, integrated and accountable.

-
- Goal 6.1** Introduce Universal Basic Services (UBS), covering health, education and housing – but strictly means-tested and underpinned by a negative income tax. (MT)
-
- Goal 6.2** Overhaul the tax system to introduce universal (effective, efficient, and equitable – including intergenerational equity) taxation, including a capital gains or undeveloped-land tax, to remove all distortions in our tax system. (MT)
-
- Goal 6.3** Use hypothecation⁵⁹ as a vehicle for increasing transparency and accountability for the effective, efficient and equitable use of tax revenue to enhance public value. (MT)
-
- Goal 6.4** Ensure that the welfare system is fully aligned with the principles of responsibility and contribution, when possible, as a quid pro quo for rights and care (through social insurance schemes and equivalents) during difficult times or periods of transition. Under a social contract, there are responsibilities as well as rights – it is not one-way traffic. What the principle says is that all those who are able to do so should be expected to contribute to growing the wellbeing pie, while we look after those who are in genuine need. (LT)
-
- Goal 6.5** Establish a Royal Commission on the Cost of Living. In 1912, the government established a Royal Inquiry into the Cost of Living. It brought together a range of experts across the country and asked them to answer 13 questions over a three-month period, including what caused the recent increase in the cost of living, whether that increase was similar to the increase felt by other English-speaking countries, and what could be done to reduce the costs of the necessities of life. At a time when the cost of living is on the increase and poor information is likely to be misconstrued by some, it seems timely to provide MPs, policy analysts and the public with a common understanding of the cause, the impact and the solution. (ST)
-
- Goal 6.6** Remove GST on fresh produce. (ST)

Cross-cutting theme #7: Prosperity

Increasing productivity is essential to improving prosperity. Challenges include economies of scale (i.e. our population is small, we are sparsely populated and the terrain makes roading and other infrastructure expensive), how to better share prosperity, how to improve business and community resilience (especially for the productive sectors), and how to gain and retain access to foreign markets.

-
- Goal 7.1** Invest in enhancing the resilience of sectors in which New Zealand has competitive advantages, improving access to foreign markets, building the skills of the population, and fostering nimbleness and adaptability to quickly embrace new opportunities. More specifically, reducing trade costs and boosting digital connectivity helps small countries withstand external shocks arising from supply chain disruptions.⁶⁰ (Ongoing)
-
- Goal 7.2** Develop a completely new policy-making paradigm that looks past the old arguments about the supposed inherent limits of government, and the dichotomy between the public and private sectors. Treat government (at all levels), markets and community organisations as complementary institutions and genuine partners. (Ongoing)
-
- Goal 7.3** Emphasise the dissemination of productive and biosphere-friendly economic opportunities throughout all regions and all segments of society. Focus on revitalising local communities as a complement to globalisation. Use a restructured version of the Provincial Growth Fund for this purpose, letting communities decide what they should be investing in, but insisting on co-funding and holding them strictly responsible and accountable for agreed outcomes. (MT)
-
- Goal 7.4** Emulate the United Kingdom’s What Works Wellbeing,⁶¹ and construct ‘community-led, centrally-enabled’ projects as a diverse set of trials and experiments, with a view to learning from them. What we learn can then provide a useful input into a national database on what works for wellbeing. (MT)
-
- Goal 7.5** Progress a visitor levy at scale as a revenue stream for councils. Currently the additional tax revenue from increased tourist spending goes to central government, with councils facing increased infrastructure and services costs to be met out of rates. (ST)
-
- Goal 7.6** Prevent the accumulation and abuse of market power in the form of monopolies and oligopolies. (Ongoing)

5.0 Seven BIG policy actions

To be selected as a BIG policy action the goal must have:

- **scale:** be able to make a difference and move the dial
- **impact:** with benefits, costs and risks able to be assessed, measured and managed
- **specificity:** able to be articulated, understood and communicated
- **integration:** policy that is not compartmentalised.

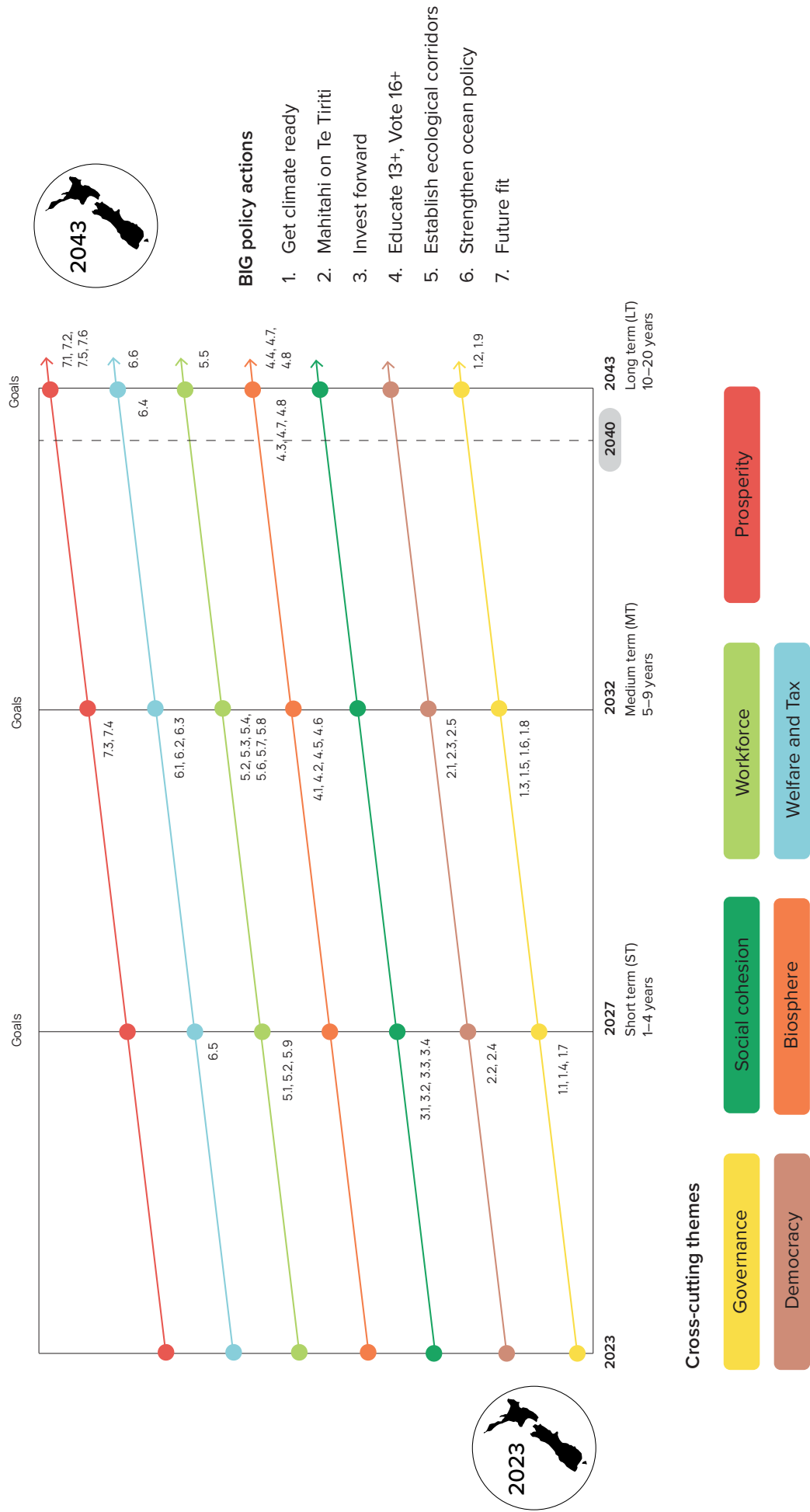
In addition to the above, where possible the objective was to:

- Adopt a systems approach: matching the challenges and opportunities the country faces, and prioritising investments in the institutions and policy interventions that will address them.
- Take into account the interdependencies and complementarities of outcomes; for example taking into account the environmental, social, cultural, political, and economic impacts in order to maximise benefits and minimise harm.
- Seek inclusive policies: design, prioritise, and implement public policies that are inclusive, reflecting the active involvement of all key stakeholders – the communities, iwi, all levels of government, and business. Help people and organisations to work collectively – the current models of collaboration are not working. For example, families in poverty are engaging with up to 30 agencies in a week and constantly retelling their poverty stories.

We present the seven policy actions in detail, and then offer an assessment of their likely overall impact on the seven cross-cutting themes identified in Section 4.2.

As illustrated in Figure 4 (overleaf), the goals identified in Section 4.2 were revisited and reshaped in the form of a set of seven BIG policy actions. Each individual policy action need not, and typically will not, contribute to advancing each and every cross-cutting theme discussed in Section 4.2. However, if pursued simultaneously, the collective impact of the policy actions will progress all cross-cutting themes, thus moving the whole system forward, to support sustainable wellbeing.

Figure 4: Lifting Aotearoa New Zealand's game to 2043 and beyond



BIG Policy Action #1: Get climate ready

Getting climate ready means actively working on ways to help New Zealand and New Zealanders reconsider and organise their assets, prepare plans for climate events and build the capability of their mokopuna for a major systemic shift in the way we live.

Being 'climate ready' recognises that government and business are not solely responsible for adapting all of society to the impacts of climate change. The idea of being 'climate ready' aims to communicate that climate resilience is a shared responsibility which requires equal focus across government, business, local council, community and individual levels.

BROADER CONTEXT

The central government 'sets the direction so that New Zealand's people, environment, economy and national infrastructure, are more resilient to the impacts of climate change'.⁶² Specifically, this is achieved by:

- providing the supporting legislative and policy framework,
- providing information and guidance to support local government and business to make effective adaptation decisions,
- funding research on climate change impacts, and
- preparing for and responding to major natural hazard events.⁶³

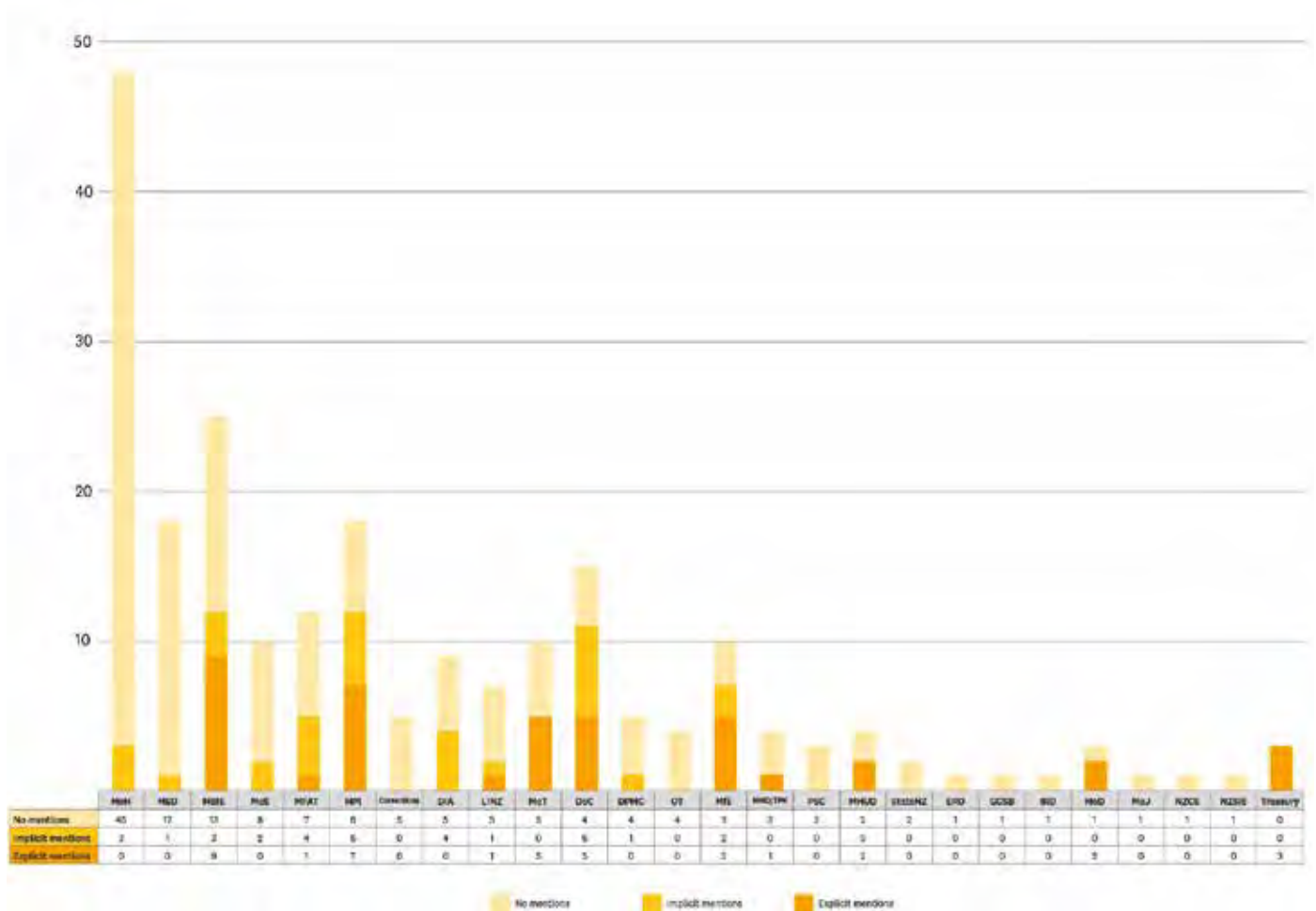
As part of the Institute's most recent analysis of government department strategies (GDSs), researchers analysed each GDS with regard to implicit and explicit mentions of climate change. GDSs are important strategy documents as they provide citizens with a window into the workings of government and act as critical instruments for policy-makers in bringing about change. Figure 5 (overleaf) illustrates the research findings.

In viewing Figure 5, it becomes apparent that not enough is being done across the whole of government. For example, The Treasury is taking climate change into consideration in its GDSs, but the Ministry of Health and the Ministry of Social Development are yet to do so in a meaningful way. This provides an interesting yet unsettling observation, as the impacts of climate change will be felt more by the vulnerable (e.g. with poor health and/or financial constraints such as difficulty in relocating or inability to purchase an electric car).⁶⁴

The fact that vulnerable communities are likely to be hit hardest reinforces the need for such individuals and communities to be supported to adapt to the impacts of climate change.

The concept of being 'climate ready' aims to communicate that climate preparedness and resilience is a shared responsibility. We all have a role to play in understanding how climate change will impact us, not only at a regional and/or national level, but also at an individual and community level.

Figure 5: GDSs in operation, ordered by number of 'mentions' of climate change⁶⁵



WHY?

The impacts of climate change will be felt by everyone, but disproportionately so by those people and communities that face disadvantage and/or are vulnerable.

Being 'climate ready' prioritises proactive and anticipatory (rather than reactive) policy and planning around what actions can be taken now, as well as in the future, to ensure a climate-resilient society. While there is growing awareness regarding the risks associated with climate change at individual and community levels, there remains a large knowledge gap regarding the effectiveness of different adaptation measures; for example, how to best prepare for severe weather events and what to do during such an event. Being 'climate ready' will raise awareness, strengthen resilience and place people in safer positions to navigate the impacts of climate change as they occur. Examples of positive outcomes include:

- Increased individual and community awareness about the impacts of climate change and how to best prepare for them.
- Increased individual and community ability to respond to the impacts of climate change when they occur.
- Reduced vulnerability to the impacts of climate change.

- Increased ability for individuals and communities to provide aid and assistance when emergency services are at maximum capacity or are unable to reach the location.
- Reduced demand for emergency services.
- Reduced insurance claims.
- Less deaths and other losses (e.g. financial, vehicles, resources, homes, infrastructure).
- Newly created jobs and skills.

HOW?

At a decision-making level, uncertainty and risk exist in terms of planning for the impacts of climate change.⁶⁶ However, at individual and community levels, this should not restrict progress toward being prepared – it should encourage it.

Focus initially on the following actions:

A. Information-led change (equitable, accurate and timely)

1. Develop a set of 2040 climate reference scenarios. These will help inform and shape decisions by government, iwi, business, councils, NGOs and communities, create information equity and align decision making. The New Zealand reference scenarios would ideally be completed by NIWA every five years. To help in this process, the Institute has compiled a table of existing national scenarios on our website.⁶⁷
2. Prioritise the sharing of and access to information. Information gaps exist across different sectors of society. Good planning needs good information, which is why accessible, accurate and relevant research is an essential component of being climate ready (especially for the most vulnerable when managing rapid and uncertain change). We need stronger, better funded and more connected climate-related research focused on delivering data that can be turned into information and ultimately provide knowledge for the resilience of individuals, council, iwi, business and government in the face of climate change impacts.

The External Reporting Board's (XRB's) climate-related disclosures (NZ CS 1) should cover a wider range of public and private entities. A robust climate-related disclosure framework should evidence how the entity is 'climate ready' and communicate this information in a timely and accessible manner via a public register of all climate statements. This should consider the double materiality perspective (i.e. the impacts of climate change on the company and the impacts of the company on climate change).⁶⁸

3. Require all government department strategies and long-term plans to be reviewed against the climate change reference scenarios.
4. Require councils with sea coasts to prepare shoreline management plans backed up by LiDAR surveys.
5. Develop a body (perhaps within an existing body such as the Climate Change Commission) to review significant climate events that occur both domestically and internationally. Ensure that lessons are learned and action is taken.

B. Consumer-led change

6. The New Zealand Parliament should go into urgency to make progress on the Climate Change Adaptation Bill to help speed up the process of communities becoming climate ready.
7. Shift the lens from production to consumption. In 2017, households were the largest contributor to New Zealand's carbon footprint (at 71 percent). Focusing more on the implications of a nation's consumption and lifestyle choices shifts the spotlight (and cost) onto polluters. Having consumers pay for pollution, ideally through pricing carbon, will directly influence environmentally negative consumption habits, incentivising sustainable decision-making.
8. Promote the concept of being 'climate ready' in order to build climate resilience through a ground-up approach. This could sit alongside or form part of the National Adaptation Plan. Specifically, this action would increase opportunities, raise awareness, strengthen resilience and, in turn, help reduce the adverse consequences of climate change.
9. Develop a climate-ready checklist for consumers. While consumers may, generally, be aware that their consumption habits are environmentally degrading, there exists a gap between understanding the actual impacts and identifying what behavioural changes are worth making. Developing and distributing a basic checklist for consumers will help fill these knowledge gaps.

Here is an example of a checklist adapted from the World Economic Forum:

- Understand your own carbon footprint.
- Seek out as much trustworthy information as possible about the products you purchase.
- Make smarter, more cautious consumer choices with this information.
- Create demand for higher quality lower emissions products (if you can afford it).
- Spread the word and help others increase their awareness.

C. Geography-focused change

10. Develop accurate and updated risk mapping. The vulnerability of individuals, councils, iwi, business and government to climate change impacts varies greatly depending on location. Furthermore, while some impacts of climate change are certain, others are unpredictable. Regular and accurate risk maps could be developed annually and used to inform the National Climate Change Risk Assessment for New Zealand (which occurs at least once every six years).
11. Progress the Climate Change Adaptation Bill (in particular managed retreat). Firstly, no new builds should be permitted on flood plains, beachfronts, unstable hillsides and clifftops. Secondly, where houses exist on flood plains, beachfronts, unstable hillsides or clifftops, they should be assessed for their ability to withstand storms and floods. Thirdly, storm water and sewerage infrastructure should be reviewed and where appropriate prioritised. Further, it is clear that adaptation and managed retreat at a national scale will be very costly (with managed retreat of vulnerable properties alone estimated to cost \$50

billion).⁶⁹ This reason alone is enough to progress the Climate Change Adaptation Bill to give effect and traction toward delivering meaningful solutions in the face of severity, complexity and uncertainty. The recent Environmental Defence Society (EDS) report, *Funding Managed Retreat, Designing a Public Compensation Scheme for Private Property Losses: Policy Issues and Options*,⁷⁰ by Jonathan Boston, makes many useful financing suggestions. Lastly, we must provide information (e.g. risk and threat lines need to be put on maps), and have conversations regarding how to administer reactive managed retreat and anticipatory managed retreat.

D. Fire weather ready

12. Review the climate change effects on fire likelihood and impact throughout New Zealand.
13. Prepare for increased fire weather incidence through data gathering technology (heat sensors, AI modelling etc), forest management and upgraded fire response capability (water bombers, training, international collaboration) to ensure fires are extinguished early.
14. Move fire management from the Department of Internal Affairs to the Ministry of Business, Innovation and Employment (MBIE).

E. House and community ready

15. Develop disaster management plans for home and community, building on existing relationships with Civil Defence and Neighbourly (a website that connects neighbours).
16. Provide fire weather guidance (such as types of planting around homes to prevent fires, ensuring fire hydrants are identifiable and water tanks adequate).
17. Ensure water drainage pipes are sufficiently large to cope with storms.
18. Establish a new unit in central government to work closely with local government to prioritise long-term protection from sea-level rise through construction of sea defences (rock rip-rap, pumps, pipes, ponds) – or, ultimately, through managed retreat.
19. Create a programme of financial assistance in collaboration with councils, banks, and the insurance industry to cover adaptation costs, ensuring the least-resourced councils are not left behind and adaptation work is not piecemeal.

F. Water ready

20. Establish a Minister of Water.

Modify the existing three waters reform. For example, establish a Water Services Council or even a Crown entity (adopting the Scottish model). Either option would reduce risk and complexity and increase public trust and community control. Water security is fundamental to New Zealand's productivity and prosperity.⁷¹

G. Farm ready

22. Encourage local food systems to support resilience in case of disasters. Highlight the need to not rely on technological solutions. The agricultural sector is a good example; we need to 'do more, with less'.

23. Encourage a range of diverse food production systems located throughout the country. As recent events have illustrated, livestock can move themselves or be moved to higher ground while plants and orchards cannot. Sole reliance on a plant-based system has risks.
24. Encourage integrated whole-of-farm plans that adopt a systems approach. MPI and/or MBIE could provide more detailed guidance for farmers, by type of farm.
25. These whole-of-farm plans could be placed on a public register, enabling good practices to be shared and emerging problems to be identified; for example, emerging water or disease issues.
26. Explore with farmers incentives to decrease stock numbers.
27. Breed livestock for temperature and drought resilience and ability to minimise erosion (e.g. type of hooves).

H. Energy ready

28. Prioritise energy security and decarbonise New Zealand's transport sector in order to decrease vulnerability to international shocks and supply chain issues.
29. Rewiring New Zealand (following the example of Rewiring Australia).⁷² Recently National leader Christopher Luxon announced the first part of the party's 'Electrify NZ' plan, which will cut red tape to significantly increase investment in renewable energy.⁷³
30. Electric planes are showing promise, as is electrifying more of New Zealand's railway system.⁷⁴
31. Smart flying: our national carrier Air New Zealand could develop a public strategy to reduce carbon, including better flight scheduling, lower altitudes, greener fuels, more efficient engines and ideally electric planes.^{75, 76}

I. Infrastructure ready

32. Establish a Minister of Works and have Te Waihanga New Zealand Infrastructure Commission report to the Minister of Works.

J. Business and innovation ready

33. Ask businesses and BusinessNZ to suggest ways to support climate innovation.
34. Establish a systemic investment fund to fund and co-fund the innovation and response to climate change that is needed.
35. Create a government-verified carbon-offset registration system. Charge registrants an annual percentage of their fees to clients and use those funds to create climate innovation prizes for communities. This would give businesses reputable ways to offset carbon, while returning money to New Zealand communities.

K. Education ready

36. Raise awareness by improving climate change education in schools (e.g. a work programme for 14-and 15-year-olds – something similar to the NIWA Climate Change Adaptation Toolbox and Enviroschools [an environmental action-based programme where young people are empowered to design and lead sustainability projects in their schools]).
37. Develop a set of guidance documents toward becoming ‘climate ready’ at multiple levels (e.g. individual, council, iwi and business). Ideally, the Ministry for the Environment (MfE) would hold this responsibility and it could follow a similar structure to MfE’s Coastal Hazards and Climate Change Guidance for Local Government (2017).

WHO?

Led by MBIE, with support from the Ministry for Primary Industries and the Environment, Education, Social Development and Health Ministries, as well as local government and iwi.

Table 1: Get climate ready

Cross-cutting theme	How the BIG policy action aligns with each cross-cutting theme
Governance	<ul style="list-style-type: none"> Given the objective of sustainable intergenerational wellbeing, it is critical that we have governing institutions focused on aligning all policies with effective and efficient management of climate change. Leadership will include MBIE (lead), MfE, MoE, MSD and NIWA, as well as councils and iwi.
Democracy	<ul style="list-style-type: none"> Effective democratic institutions will make sure that all voices are heard – including the voices of those who will be disproportionately affected by climate change. Establishing a ‘climate ready’ (and thus climate resilient) country would benefit democracy. The assumption here is that if we, as a country, are more prepared for the consequences of climate change (e.g. food security, conflicts, water scarcity, migration, and natural disasters), then they will have a lesser impact on society, and therefore there will be less likelihood of doubt in and opposition toward democratic governance.
Social cohesion	<ul style="list-style-type: none"> To the extent that climate change affects communities facing health and economic challenges disproportionately, lack of effective and equitable actions will, in the long run, have very negative effects on social cohesion.
Biosphere	<ul style="list-style-type: none"> Climate is an integral and critical component of a healthy biosphere.

Cross-cutting theme	How the BIG policy action aligns with each cross-cutting theme
Workforce	<ul style="list-style-type: none"> • Change of production patterns towards climate-friendly technologies and circular economy processes will require re-skilling the workforce. • This will require businesses, communities and policy analysts to have expertise and skills in coordination, council/iwi representation, spatial planning, civil defence/emergency management etc.
Welfare and tax	<ul style="list-style-type: none"> • Welfare: <ul style="list-style-type: none"> – Climate change has the potential to impact the welfare of individuals and communities, including (but not limited to): damages to capital and natural stock; loss of employment; loss of land; changes in consumerism; poor crop yields; heat stress; and loss of life. Therefore, being ‘climate ready’ will soften the blow of many impacts of climate change. – Individuals and communities that are economically challenged and isolated are among the most vulnerable to the impacts of climate change. Making sure that everyone is ‘climate ready’ will raise the quality of life for such demographics. There will also be jobs generated. • Tax: <ul style="list-style-type: none"> – Carbon tax. Make polluters pay for what they pollute (i.e. internalise the negative externality).
Prosperity	<ul style="list-style-type: none"> • In the long run, our prosperity is critically dependent on managing climate change. • Households, communities, and iwi; local and national infrastructure; small and medium-sized businesses will all benefit.

BIG Policy Action #2: Mahitahi on Te Tiriti

Putting time and effort into the relationship that exists between Māori and Pākehā is critical; it shows respect for our past and breeds confidence in our future.

BROADER CONTEXT

There exist two different but interconnected conversations: a conversation that reflects where we are today (e.g. updating our constitutional documents to reflect where we are today) as well as a conversation about what our constitutional arrangements might look like in say 2040 or 2100.

The New Zealand constitution increasingly reflects the fact that Te Tiriti o Waitangi is regarded as a founding document of the government of New Zealand.⁷⁷ In this way, Te Tiriti is for everyone in our society. Today, many families are a living testament to the relationship of the parties to Te Tiriti, as they include both Māori and Pākehā. There is also increasing engagement with te ao Māori, particularly in speaking te reo, practising kaitiakitanga and pursuing mātauranga. However, at another level, we have significant work to do; the Crown and iwi must find better ways to create a more positive, trusted and durable working relationship. It is in all our interests that these relationships are trusted and enduring, that different viewpoints are sought, complex and difficult issues are discussed, and both the Crown and iwi share responsibility for delivering mutually beneficial outcomes.

It is noticeable that success in the past has come about by focusing on the importance of an effective and long-term working relationship between iwi and the Crown. For example, the late Dr Apirana Mahuika (past Chairman of Te Rūnanga o Ngāti Porou) noted that relationships are forward looking whereas partnerships are backward looking – hence why he focused on developing a long-term working relationship with the Crown.⁷⁸

Hon Christopher Finlayson, previous Minister for Treaty of Waitangi Negotiations, illustrated the emerging Crown–iwi relationships when he noted on the third reading of the Tūhoe Claims Settlement Bill and Te Urewera Bill, that '[f]rom the day this legislation comes into force, Tūhoe will play the leading role in the future of their homeland, Te Urewera. More than that, what this House does today will provide the foundation for a new relationship between the Crown and Ngāi Tūhoe—a relationship in which I hope we will together walk and work for our mutual honour, dignity, advantage, and progress.'⁷⁹ Finlayson also acknowledged Tāmati Kruger for his hard work and commitment to the interests of Ngāi Tūhoe. Kruger spoke at a 2019 event the Institute hosted at the National Library where he emphasised the importance of relationships and connections with everything around him, including his past and his future. He closed by defining success in 2040 as our children's children deciding to call themselves tangata whenua (people of this land).⁸⁰

By the year 2040, the demographics of the country will have significantly changed. Stats NZ projections suggest that by 2043 the 'European or Other' ethnic group will be 64% of the population, down from 70% in 2018. All other ethnic groups are projected to increase their population share, with the Asian group having the largest rise, from 16% of the population in 2018 to 26% in 2043.⁸¹ We need to look at ways to ensure all New Zealanders understand and support Te Tiriti o Waitangi.

Lastly, there exists an opportunity to explore and build on a diverse range of wisdom and ideas, as well as values and assumptions in the public management system to better reflect te ao Māori or indigenous values, such as interconnection, belonging and the importance of considering the rights and responsibilities we have today to future generations. There are a number of publicly available reports that are starting to explore this space.⁸²

WHY?

‘Building a nation that is robust, yet sufficiently flexible to manage risks and pursue opportunities, depends on the ability of all its peoples to live and work together with a high level of harmony.’
– Project 2058 Report 8: *Effective Māori Representation in Parliament – Working towards a National Sustainable Development Strategy*.⁸³

HOW?

We could initially focus on the following actions:

1. Build on the mana of the Waitangi Tribunal.
The Waitangi Tribunal has now become a major repository of New Zealand history. This could be reviewed in order to improve accessibility and usability for citizens.
2. Find new ways to better acknowledge Ngā Pakanga o Aotearoa (the New Zealand wars), for example a permanent exhibition at Te Papa or a separate museum.
3. Explore the implications and opportunities for Te Tiriti of New Zealand becoming a republic. Engage early with this idea; try and understand the legal nuances. For example, can New Zealand have a treaty without the British Crown? When would treaty obligations switch from the British Crown to the New Zealand Crown? If not, what would need to happen to make that full and final? Is it possible to have a treaty where you represent both parties?
4. Redefine co-governance in the 21st century.
Try and create a deeper understanding of the different interpretations and types of co-governance. If the goal is to deliver mutually beneficial outcomes, the Crown and iwi will need to explore and test new funding and accountability models. At the local level, many iwi are hamstrung by limited finances, human resources and time constraints. Being transparent regarding rights and responsibilities and developing regular reporting systems is likely to help gain wider public support for some types of co-governance models.
5. Reimagine how better public policy outcomes (e.g. education, health, prisons etc) might be delivered to Māori.
We must find a way to change the statistics. We must find a way to change the statistics. We wonder how policies affecting Māori could be better embedded and debated inside political parties.
6. Replace the Māori roll with a Māori MP representation roll.
This idea may enable Māori policy and ideas to be better integrated into political priorities. A Māori MP representation roll is a roll where New Zealanders can vote on the level of representation of Māori MPs in the House. To make this work, each MP of Māori descent would need to register as a Māori MP and outline their whakapapa. Each political party

would also create their own Māori MP list. The Māori MP representation roll would determine the number of Māori MPs in the House, using the Māori MP list. Hence it would not change representation by political parties but the representation within the political parties. The current system separates political party voting into two rolls, whereas the proposed system unifies voting but guarantees minimum Māori representation as determined by all voting New Zealanders.

7. Establish a working group to reimagine and reconsider what a successful bicentennial celebration in 2040 might look and feel like. Engaging with and listening to youth will be key.⁸⁴

For example, is a new public building appropriate (e.g. a national marae)? Could we create a bicentennial currency? What institutions and/or policy instruments could be established? What would success look like?

8. Explore Tāmami Kruger’s idea that all New Zealanders become ‘tangata whenua’, which is both inclusive (for all New Zealanders) and exclusive (unique internationally). This could be acknowledged in law.

WHO?

Led by Cabinet, ideally with support across the House. A select committee could establish an inquiry into what co-governance looks like in the 21st century.

Table 2: Mahitahi on Te Tiriti

Cross-cutting theme	How the BIG policy action aligns with each cross-cutting theme
Governance	Te Tiriti requires both parties to be heard, including youth, through active and meaningful participation in decision making and a deeper understanding of our shared past and common future.
Democracy	If democracy is about having a voice in matters affecting our lives, then all citizens have a right to participate actively and effectively, and have a say, in decisions that affect them, as well as future generations.
Social cohesion	Tensions exist between various ethnic groups (especially Māori and Pākehā), between urban and rural, and between the wealthy and more financially challenged communities. Social cohesion will improve when both parties to Te Tiriti observe and see the Crown and iwi work together to find practical ways to improve society and the environment.
Biosphere	Te Tiriti is an excellent platform for all New Zealanders to actively seek ways to improve the health of the biosphere.
Workforce	If implemented, this policy action will create a more confident cohort of young people who have a sense of belonging to this land. Te Tiriti is an excellent platform for enabling the Crown and iwi to discuss ways to upskill and transition the workforce.
Welfare and tax	Minimal impact.
Prosperity	Increasing democratic participation and influence may translate into more confident and creative citizens – especially youth, thus contributing to productivity.

BIG Policy Action #3: Invest forward

A strong platform for sustainable wellbeing has to be founded on shared prosperity.

BROADER CONTEXT

To that end, there is an urgent need to enhance intergenerational equity. This needs to be achieved effectively and efficiently, through integrated and coordinated welfare and tax reforms. There is no better place to start than the newly born, so that their futures are less limited by their circumstances.

WHY?

Economist Paul Krugman said in 1994 that '[p]roductivity isn't everything, but, in the long run, it is almost everything. A country's ability to improve its standard of living over time depends almost entirely on its ability to raise its output per worker.'⁸⁵ Productivity Commission Chair Dr Ganesh Nana emphasises that productivity matters – how productive we are as a country affects our daily lives and overall wellbeing.⁸⁶

The Productivity Commission's 2021 report *Productivity by the Numbers* notes that New Zealand's productivity growth has declined, which has significant implications for wellbeing. This means New Zealanders are working hard but producing less. New Zealanders work longer hours (i.e. 34.2 hours per week compared with 31.9 hours per week in other OECD countries) but produce less (\$68 of output per hour, compared with \$85 of output per hour in other OECD countries).⁸⁷ Ganesh Nana noted that 'New Zealanders are working harder rather than smarter, this makes improving living standards even more difficult'.⁸⁸ The Commission concluded innovation is the key to lifting productivity.

Sustained improvements in our aggregate or average productivity as a nation provide a necessary platform for sustained improvements in our collective wellbeing. It is critical that we measure productivity not exclusively as income or output per head of population, but rather overall wellbeing per head of population. Implementing this has its own challenges, but it is a worthy aspiration to pursue.

However, even if achieved, this is not sufficient. We must be equally concerned about the distribution of wellbeing across society and across generations. We cannot have social stability and sustained wellbeing unless we have equity. This means providing everyone with an opportunity to become a stakeholder in our society, by:

- giving everyone access to education, healthcare and housing
- providing employment opportunities to everyone who is able to be employed
- ensuring everyone has a minimum level of adequate income
- looking after those who cannot look after themselves
- ensuring everyone has a voice in matters that affect them.

As Raghuram Rajan puts it, ‘Inequality is a real problem today, but it is the inequality of opportunity, of access to capabilities, of place, not just of incomes and wealth. Higher spending and thus taxes may be necessary, not to punish the rich but to help the left-behind find new opportunity. This requires fresh policies not discredited old ones.’⁸⁹

HOW?

1. Establish a Mokopuna Fund (equivalent to our New Zealand Super Fund).

We can make a strong case for this on grounds of both fairness and equity (both intra- and intergenerational). Each child from a low income/wealth family will be gifted an investment fund at birth, to be accessed when they reach the age of 18, for specific uses, such as education, establishing a business, or buying a home. This would be funded primarily through a land tax levied on the value of unimproved land. As Andrew Coleman carefully explains, a land tax is effective (hard to avoid), efficient (causes minimum distortions in decisions relating to the allocation of economic resources), and intergenerationally equitable (partly through lower house prices, it transfers resources from current to future generations).⁹⁰ A land tax may not generate sufficient funding for what we are trying to achieve, but it is a useful place to start because it clearly signals what we are trying to enhance – i.e. intergenerational equity. Once this principle is accepted, we can explore alternative means of contributing to the Mokopuna Fund effectively and efficiently. The equity of the overall tax and welfare system can also be enhanced by introducing means-testing for superannuation payments.

Access to assets provides a source of opportunities and capabilities. In this vein, Conal Smith argues for asset-based assistance for high-risk children. He proposes that the state provide wards of the state with a reasonably generous cash endowment at the age of 18, so that they have the foundation for a positive start to their adult lives. We are proposing a general Mokopuna Fund, as well as a targeted fund for wards of the state. The purposes for which this asset can be used – such as education, upskilling and housing (for first home buyers), as well as small-business investments supported by mentoring programmes – would be strictly prescribed. Such an approach could be implemented through public and private sector partnerships.⁹¹

To generate support for such a land tax, we would make it a hypothecated (or ring-fenced or earmarked) tax, dedicating the revenue from it specifically and exclusively to the Mokopuna Fund. Such a proposal may prove palatable to the land-owning part of the population if they believe and trust that this will genuinely improve the life-chances of young people from low-income/wealth families.

Establishing such an infrastructure is an example of the deliberate creation of an institution specifically targeted to building trust, through transparency and accountability, for serving a highly desirable social purpose – for the benefit of everyone, wealthy and poor.

2. Improve financial capability training in schools.

Currently financial capability is a subject in the school curriculum.⁹² Currently financial capability is a subject in the school curriculum. However it is arguably still underemphasised. Financial capability is one of the reasons financially challenged people fail to become wealthy. If you do not understand the financial system, in particular the current risks and opportunities, the chances of remaining poor are high. Our ability to confidently manage our own assets and

debts, and support those of our whānau, is a key skill. Skills are required to understand and manage financial instruments such as insurance (including house, car, travel and healthcare), car WOF and driver licence, trusts and wills, bank accounts and loans, differences between invoices and statements, and hire purchase. Skills are also needed to manage the risks of cybersecurity and identity theft.

3. Grow, attract, retain and connect talent.

Immigration processes should be reviewed. Ways to reduce wait times, fast-track skills that are urgently required (e.g. nurses and doctors), and increase dual/multi citizenship opportunities are ideas worth exploring. (See also the Institute's work on talent, based on the work and thinking of Sir Paul Callaghan.)⁹³

4. Increase our refugee quota.

The latest United Nations figures state that as of May 2022, 100 million people were forcibly displaced (more than double the figure 10 years ago).^{94, 95} New Zealand accepts 1500 refugees per year (an increase on the previous quota of 1000); however, this only keeps track with population growth since the quota began in 1987.⁹⁶ The equity of the overall tax and welfare system can also be enhanced by introducing means-testing for superannuation payments.

WHO?

- Establish a task force to investigate the Mokopuna Fund proposal, and report back. If the report is favourable, and is universally supported by all political parties, the Fund needs to be established through an Act of Parliament. The benefits from the Fund would be available to all newly born children who come from families with 'low financial resources' (to be defined in the Act). It would apply everywhere in New Zealand, and to all children who meet the criteria specified in the Act.
- MBIE and the Ministry of Education (MoE) should lead initiative 2.
- MBIE should lead initiative 3.
- The Minister of Immigration, with Immigration NZ, should lead initiative 4.

Table 3: Invest forward

Cross-cutting theme	How the BIG policy action aligns with each cross-cutting theme
Governance	Does not directly contribute to good governance.
Democracy	In the long term, across generations, it would have a huge and positive influence on democracy by making effective participation much more likely.
Social cohesion	It would contribute to social cohesion. In the medium term, by significantly enhancing both the perception and actualisation of equity across society and across young and old; and in the very long term by evening the playing field and protecting it from distortions associated with the circumstances into which children are born.
Biosphere	Very indirect and very long term.
Workforce	Education and employment are two of the legitimate uses for the Mokopuna Fund. This level and type of investment should generate significant positive return on investment.
Welfare and tax	The policy action aims to use the welfare and tax system to improve intergenerational equity.
Prosperity	It would certainly contribute to the more equitable sharing of prosperity in the short to medium term, and very strongly contribute to the equitable creating of prosperity in the longer term (especially across generations).

BIG Policy Action #4: Educate 13+, Vote 16+

Lowering the overall voting age to 16 would be a step forward in the process of strengthening democracy, pursuing effective future governance and enhancing intergenerational equity.

BROADER CONTEXT

The legal voting age in New Zealand has been lowered twice previously. In 1969, the voting age was lowered from 21 to 20; it was lowered from 20 to 18 in 1974.⁹⁷ While both changes occurred under a first-past-the-post electoral system, meaning government majorities were more easily won, the legislation still required a parliamentary supermajority, and the support of the opposition was crucial in each instance.⁹⁸ Following the Supreme Court's decision in *Make It 16 v Attorney General* in November 2022, the Labour government led by Jacinda Ardern promised that government legislation would be drafted and presented to the House of Representatives with the aim of lowering the voting age to 16.⁹⁹ Importantly, though, this proposed legislation requires the support of the opposition to pass.¹⁰⁰

It has been noted that the higher bar requiring a 75% parliamentary majority only applies to amending the voting age in general elections.¹⁰¹ The government, under Ardern, was considering pursuing a change in the voting age from 18 to 16 for local elections – a far more achievable action, and one that seems to have more cross-party support.¹⁰² This would be an important step in moving forward to full enfranchisement for 16- and 17-year-olds.

The 2020 election had an 82.24% turnout of enrolled voters – the highest turnout since 1999.¹⁰³ However, this was possibly due to the two controversial referendums being held: the cannabis referendum and end-of-life choice referendum. Notably, there was an increase of 18.8% in voters aged 18 to 24. This suggests that youth will enrol and turn out if they think the issues are important and that they can make an impact.¹⁰⁴

WHY?

Fundamentally, this action would systemically strengthen Aotearoa New Zealand's democracy and increase social cohesion through advancing intergenerational equity. Including our young people in the political decisions of today will help ensure our society is better prepared to govern for the future.

Broadly, such action is beneficial in aligning with opportunities for education and motivation for our youth. Allowing young people to vote while still in high school opens the classroom to teaching more thorough civics programmes that, importantly, can be readily actioned and applied by students.¹⁰⁵

In a ripple effect, such educational opportunities can further promote the fundamental skills of informed, critical thinking and productive discourse around often contentious topics. While civics education should be increased regardless, the immediate real-world action of voting demonstrates a ready avenue for students to enact their learning and see the effects of their actions. The general health of democracy can be advanced through increased voter participation, in conjunction with better civics education, as the Scottish case shows.

The 2014 Scottish Independence Referendum included 16- and 17-year-old voters. It was found that this group was positively affected by their enfranchisement, with elevated interest and engagement in politics. When the Westminster Parliament transferred power over franchise to the Scottish Parliament, the voting age was lowered to 16 for all Scottish elections, including the Scottish Parliament, local government, and Scottish referendums, but not general UK-wide elections. It was found that the new voters had an increased sense of empowerment but also growing resentment at their exclusion from other UK elections.¹⁰⁶

A Royal Commission Report on the Electoral System acknowledged the ‘strong case’ for lowering the voting age even in 1986.¹⁰⁷ This report traversed many of the current arguments against lowering the voting age, including alleged youth incompetence in making political decisions.¹⁰⁸ It concluded that young people’s understanding of the social and political world ‘is not very different’ to that of mature adults.¹⁰⁹

It would also be beneficial in terms of social cohesion. Current issues, notably climate change, will reach breaking point in the years when today’s youth will be making decisions to combat them. Allowing and encouraging political participation by young people now will enable them to realise and effect the full potential of their autonomy going forward. Further, embracing youth in our political system at a younger age would acknowledge the contributions they already make to society and include them in the democratic process.¹¹⁰ This is a meaningful action to show youth that society, as a whole, values their input.

The enfranchisement of women in 1893 and changes to voting laws that effectively excluded Māori from voting were other important steps forward in strengthening democracy and social cohesion which we now consider fundamental, but were hard-won battles. Additionally, a voting age of 16 is not new territory internationally.¹¹¹ The cases of both Scotland (above) and Austria (below) show positive results following 16- and 17-year-old enfranchisement, with engagement and participation on par with or above that of the rest of the voting population.

In Austria, the voting age for general elections was lowered to 16 in 2007. Since then, several studies focused on the voting behaviour of 16- and 17-year-olds. It was found that this group had the second-highest interest in politics out of all age groups, and that while their general political knowledge was slightly lower than other groups, the difference was insignificant. Voting participation of 16- and 17-year-olds was contrary to ‘the general trend that turnout of young voters is far lower than in the overall electorate’.¹¹² This case shows that not only are young people as interested in politics as the rest of the electorate, they translate that interest into casting their vote.

HOW?

1. Change New Zealand’s current electoral laws to make the legal voting age for general elections 16 years.
2. Given the relevant legislative provisions are entrenched – meaning they are subject to special protections – this would require the approval of 75% of Parliament, or, alternatively, a 50% majority in a nationwide referendum.
3. To promote effective results following a change, strengthen and improve civics education in the New Zealand school curriculum.

WHO?

Such a legislative change requires an Act of Parliament to pass, amending existing legislation. This can be effected through either support of 75% of MPs or by the majority support of the electorate in a referendum. Judging from prior changes, this means cross-party support is crucial. Lowering the voting age for local elections would simply require an Act of Parliament supported by a majority of MPs.

Table 4: Educate 13+, Vote 16+

Cross-cutting theme	How the BIG policy action aligns with each cross-cutting theme
Governance	<ul style="list-style-type: none"> Enfranchising young people will reassure them that their voices count in our governing institutions. Extending the opportunity to contribute in important political arenas to youth will help ground them as valued contributors in an often alienating political landscape. More young people will progress into adulthood with an understanding and appreciation of governance systems.
Democracy	<ul style="list-style-type: none"> The intergenerational effect of this policy action will see increased participation and representation in our democracy. Skills gained from greater exposure to the democratic system at a younger age will be wider-reaching and beneficial for engaging the electorate in later generations. Extending the franchise will, by definition, bring us closer to more representative democracy, as was seen in 1893 with women's suffrage. The ability for young people to have a voice in decisions that will shape their futures will be increasingly important.
Social cohesion	<ul style="list-style-type: none"> With the views of young people validated in their inclusion in the electoral system, a mutual generational respect for contributions will arise. Young people's resentment at exclusion from important decisions may be somewhat alleviated. Extended franchise will extend public discourse on important topics as young people necessarily take more interest in the political sphere.
Biosphere	Given youth seem to care passionately about the environment, the climate, and biodiversity, an effective democratic voice in decisions affecting the future should improve the quality of the biosphere.
Workforce	Modest effect.
Welfare and tax	Many young people work in jobs before they are 18, meaning they are currently taxed without representation in government.
Prosperity	Minimal effect.

BIG Policy Action #5: Establish ecological corridors

Indigenous ecosystems and species in Aotearoa New Zealand, like most of the world, are in a state of rapid decline due to a combination of factors, including land use, pollution, resource extraction, the increasing presence of invasive pests and diseases, and increasing climate change and extreme weather effects.¹¹³ This idea aims to help make New Zealand and its flora and fauna more resilient.

BROADER CONTEXT

Ecological corridors, also known as wildlife corridors or habitat corridors, are physical connections that link different areas of habitat to facilitate the movement of species between them. These corridors play a critical role in the conservation of biodiversity by promoting genetic diversity, reducing the risk of extinction of isolated populations, and allowing for the spread of species to new areas. New Zealand is a country with unique flora and fauna, and ecological corridors have been identified as an important tool for conservation efforts.

New Zealand's geographical isolation has resulted in the evolution of a distinct flora and fauna, including many endemic species. However, human activities, such as land use change, fragmentation of habitat, and invasive species, have had a significant impact on the country's biodiversity. In response, conservation organisations have identified the need for ecological corridors to connect fragmented habitats, allowing for the movement of species and the exchange of genetic material.

WHY?

- Establish New Zealand as a world leader in conservation, biodiversity protection and climate change mitigation.
- Enable New Zealand to meet the 30% by 2030 global target agreed to at the December 2022 UN Convention on Biological Diversity agreement for the effective conservation and management of land.¹¹⁴
- Build on the intent of Te Tiriti o Waitangi and Te Tiriti principles.
- Mitigate the biodiversity crisis by protecting and restoring the environment. Around 4000 of New Zealand's native species are threatened or at risk of extinction.¹¹⁵
- Prevent ecosystem collapse by 'rewilding', protecting native forests and allowing native flora and fauna to thrive.
- Align restoration policy with carbon sinks. Forests have an important role in reducing greenhouse gas emissions. They are often classified as natural forests (30%) or planted forests (7%); however, not all natural forests are protected.¹¹⁶
- Ensure reforestation targets are met. Climate Change Commission recommendations to Government include creating 300,000ha of new native forest between 2021 and 2035.¹¹⁷
- Safeguard public and iwi access. Ecological corridors will improve local and national recreation and amenity. They will help connect people to nature whilst enhancing local utility, community connection and local and national tourism value.

- Protect and mitigate the impacts of climate change and extreme weather. Climate change means our biodiversity will come under growing pressure. Restoring a damaged ecosystem will help make it more resilient to climate change in the future. ‘Sponge cities’ are an example of how ecology can benefit the surrounding environment.¹¹⁸
- Maintain and improve soil, air, and water health. A thriving ecosystem is an essential part of protecting Aotearoa’s food security and food quality. Healthy natural environments will also have positive impacts on human health (both mental and physical) and overall societal wellbeing.
- Consider carbon sequestration. Ecological corridors will require new forms of protection and restoration. As such, ecological corridors could be designed to provide income from carbon sequestration. This could also be a way of ensuring local councils and government institutions meet their net zero goals for the future.
- Create jobs, education and skills in regional areas. Examples include tourism, pest control, horticulture and planting.

HOW?

1. Establish ecological corridors connecting national parks and other conservation areas across the country. Options include:
 - Option 1: Start on the West Coast of the South Island as it already has a significant block of interconnected native forest which is home to a substantial amount of indigenous flora and fauna. That would provide an opportunity to invest and test the idea, explore proof of concept and learn lessons on how best to scale the idea.

The Department of Conservation’s (DOC’s) current reclassification programme provides a further opportunity for land to be reclassified as ecological corridors. DOC is currently working through a process of reclassifying stewardship land, starting with 504 pieces of land on the West Coast. Stewardship land is a category of conservation land that contained conservation values when it was first assigned to DOC in 1987, but was not classified into a specific category (such as park areas, wildlife and habitat protections or reserves and specially protected areas).
 - Option 2: Start from Northland and continue all the way to Stewart Island.
2. Establish as part of Aotearoa New Zealand’s unwritten constitution a commitment to preserve and protect a certain percentage of land.¹¹⁹ For example, Bhutan’s constitution mandates the preservation of 60% of its land under forest cover.¹²⁰
3. Increase funding for DOC.
4. Increase funding for the Predator Free NZ 2050 programme.
5. Expedite predator-free status for islands such as Rakiura Stewart, Aotea Great Barrier and Resolution Island, which already have head starts and could become models on how to tackle mainland animal pest eradication.
6. Explore ways to create ‘spongy coastlines’ that are designed to absorb and filter water.

WHO?

Led by DOC and iwi, in collaboration with regional and territorial councils, local communities and NGOs.

Table 5: Establish ecological corridors

Cross-cutting theme	How the BIG policy action aligns with each cross-cutting theme
Governance	<ul style="list-style-type: none"> Leadership and new forms of protection will need to be developed for ecological corridors. For example, this could be along the lines of caveats for landowners, such as Queen Elizabeth Park in the greater Wellington region.¹²¹ Leadership will be essential, ideally from DOC and iwi.
Democracy	<ul style="list-style-type: none"> Implementing this idea will require a high level of engagement with landowners, iwi, councils and the wider community. Listening and being curious about what others think (including knowledge about flora and fauna) will help citizens be physically and mentally fit and have a strong sense of belonging. A purpose-led approach should help unite the country, enabling us to achieve a shared goal.
Social cohesion	Reasoned conversations, followed by agreed actions and timelines, across the whole community would enhance social cohesion.
Biosphere	Creating ‘swampy coasts’ will have a lot of positive impacts, including preventing erosion and flooding and improving the diversity of our flora and fauna (e.g. birdlife/frogs).
Workforce	<ul style="list-style-type: none"> This will require expertise in ecological science, geography, horticulture and geology. It will also require plants and planting skills, as well as ongoing management and monitoring of the health of the ecosystem. The corridors are often in more economically challenged communities in isolated parts of New Zealand. This should provide employment for those currently in need of welfare support, build their skill base for lifetime careers, and improve mental and physical health. Creating training and meaningful job opportunities in these communities may help encourage people to move to these isolated regions. Local employment and business opportunities may also improve with increased tourism around ecological corridor areas. An example of this strong interrelationship was the Jobs for Nature programme, created during COVID-19, which demonstrated a strong connection between conservation work and tourism, especially in seasonal tourism communities such as Franz Josef and Fox Glacier. This allows communities to thrive all year by focusing on tourism during high season and conservation in low season.

Cross-cutting theme	How the BIG policy action aligns with each cross-cutting theme
Welfare and tax	<ul style="list-style-type: none"> • Tax: <ul style="list-style-type: none"> – New Zealand could increase the International Visitor Levy (IVL) from \$35¹²² to a more significant amount (as Bhutan does). Given the number of tourist arrivals in 2019 was 3.88 million,¹²³ a tourist tax on arrival in the vicinity of NZ\$200 would generate about \$700 million p.a. We propose a one-off entry tax would work better than the per day model used in Bhutan, in that we expect a one-off tax on arrival would incentivise travellers to stay longer, increasing the total tourist dollars spent per visit. The mechanism needs to be well thought out to ensure the levy helps alleviate challenges posed by tourism, such as conservation and destination management. The current IVL has received criticism as it is not clearly assigned in relation to tourism purposes. – Carbon offsets could be made available to New Zealand and international businesses to provide additional funding. In addition local carbon credits could be made available so New Zealand businesses can avoid purchasing them offshore, helping to build local industry. This is a positive change as a significant part of the NZ Carbon Net Zero plans are reliant on offshore credits. This could become a new international instrument that could serve as an example to other countries (e.g. the UN Convention on Biological Diversity).¹²⁴
Prosperity	<ul style="list-style-type: none"> • Tourism: both national and local communities would benefit. • Businesses: improvements in tourism will create a cascade of benefits for a variety of businesses. Some possible infrastructure improvements could eventuate, such as better roading, accommodation, restaurants and medical support. • Local infrastructure: more people living in isolated areas increases the resources for councils. • Branding: internationally this will ensure New Zealand improves its ‘clean green’ image. There is an emerging stigma that New Zealand uses greenwashing to cover up pollution, species decline, carbon emissions and other serious environmental issues. Implementing these changes will make New Zealand a global example of values-based conservation. As well as improving the reputation of the country, it will also create spill-over branding benefits to exports.

BIG Policy Action #6: Strengthen ocean policy

This policy aims to deliver a healthy ocean that sustains marine biodiversity, while optimising the climate change mitigation role of oceans and enabling a high-value sustainable blue economy. Interestingly, ocean policy has evolved to combine climate and biodiversity rather than treating them separately.

The purpose of this BIG policy action is fourfold: to redesign the intersection between land and ocean policy (e.g. deal with run-off), integrate and align existing ocean policy, rewild our territorial sea (reversing current trends), and protect our exclusive economic zone (EEZ).

BROADER CONTEXT

In late 2020, the Minister of Fisheries became the Minister for Oceans and Fisheries (raising the role of oceans and acknowledging the natural tension and interdependence between ocean management and the fishing industry). In June 2021, Minister David Parker announced a multi-agency approach to protecting New Zealand's marine ecosystems and fisheries. The newly established Oceans Secretariat, comprising officials from the Department of Conservation, Ministry for Primary Industries and the Ministry for the Environment, would lead the long-term ecosystem-focused project. Other agencies would participate when required.¹²⁵

In July 2022, after two years in the role, Minister Parker reflected on his portfolio of eight existing initiatives, of which seven had been started.^{126, 127} Only one was not under way – the reform of rules around marine protected areas. The Minister has acknowledged that the 'marine management system is fragmented, with difficulty responding to growing pressures in a holistic, timely manner; and management decisions have too often been taken without regard to ecosystem-based management. This has created uncertainty for stakeholders, hindered growth and innovation, limited progress on marine protection, and generally impeded the optimal use and protection of marine space and resources.'¹²⁸

WHY?

- New Zealand is a signatory to multiple global commitments, including the UN Law of the Sea, the UN Framework Convention on Climate Change and the UN Convention on Biological Diversity. A focus on an integrated ocean policy might enable New Zealand to meet the December 2022 UN Convention on Biological Diversity agreement: 'Ensure and enable that by 2030 at least 30 per cent of terrestrial, inland water, and coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem functions and services, are effectively conserved and managed through ecologically representative, well-connected and equitably governed systems ...'¹²⁹
- We have the fourth-largest exclusive economic zone (EEZ) in the world, covering approximately 8% of the earth's surface.
- There are multiple laws, plans and agencies governing our coasts and oceans, many of which are outdated, conflicting and no longer fit for purpose.
- There are also significant commitments arising from Te Tiriti obligations, and existing or pending settlements.

- New Zealand has lost its place as a global leader in coastal and ocean management and is seen in many quarters as a global laggard in implementing its commitments in areas such as marine protection, climate change, fisheries management and ocean governance.

HOW?

A. Creating new institutions

1. Establish an Oceans Research Institute.

The main purpose would be to build an informed and science-based oceans constituency that includes policy, governance and social research, and identifies limits, targets and solutions. Independence from Government, including funding, will be essential to ensure the Institute is trusted by all stakeholders. The outputs of the Institute could include:

- a written response to the three-yearly environmental report on the marine domain (published by MfE and Stats NZ). The latest report was published in 2022. The response should form a report tabled in the House and should include observations and suggestions on the way forward.
 - a publicly available sensing map of the territorial sea, using remote and direct sensing. Remote sensing is the ability to obtain information from a distance, usually by aircraft or satellites. The aim is to provide an integrated approach to ocean management to better understand place-based impacts. This could include monitoring wave heights, sea-level storm surges, ocean circulation, water temperatures and marine life.
 - an annual report on the state of our territorial sea.
 - an annual report on the state of the EEZ.
 - leading consultation on a rewilding sea strategy (e.g. kelp forest restoration).
 - identifying limits and targets (to align with the proposed resource management reforms).
 - collating a research archive.
 - collating and identifying research gaps.
 - for the Minister for Oceans and Fisheries to table a comprehensive annual report in the House.¹³⁰
2. Establish an Ocean Commission to hold government accountable against agreed policy goals.

B. Protecting more ocean space using existing tools and instruments

3. Establish as part of Aotearoa New Zealand's unwritten constitution a commitment to preserve a certain percentage of our territorial sea (along the lines of number 2, in BIG Policy Action #5: Establish ecological corridors, see p. 62).¹³¹
4. Establish a Rangitāhua/Kermadec Ocean Sanctuary.
5. Establish a new marine park in the inner Queen Charlotte Sound (and possibly the Pelorus Sound). Queen Charlotte Sound has always been kept relatively free of commercial enterprises.

Figure 6: Marine reserves and boundaries on DOC maps¹³²



6. Establish a new marine mammal sanctuary connecting Clifford and Cloudy Bay Marine Mammal Sanctuary (Marlborough) and Te Rohe o Te Whānau Puha Whale Sanctuary (Kaikōura). This would help connect the west coast of the North Island with the other protections on the east coast of the South Island. The current gap in protection may simply be a historical error that could easily be rectified.¹³³ See Figure 6 (previous page).
7. Implement the South-East Marine Protection Forum recommendations for a network of marine reserves and marine protected areas between Timaru and South Catlins.¹³⁴
8. Ban bottom-trawling. Prevent damage to delicate ecosystems (like seamounts and slow-growing corals and sponges) that provide habitat for a diverse range of ocean creatures.¹³⁵

C. Exploring and testing new tools and instruments

9. Rewild Auckland Gulf Harbour and develop new types of protection for the Hauraki Gulf Marine Park.¹³⁶
10. Create new marine mammal protections, regulation and monitoring.
11. Establish seabird protections. New Zealand is considered to have a greater diversity of seabirds breeding on its shores and islands and feeding from the sea than any other country in the world.¹³⁷

D. Integrating and connecting existing ocean policy

12. Create a network of national marine protected areas (such as marine reserves, marine mammal sanctuaries and seabird protections),¹³⁸ which contribute to the development of an overall national plan for our territorial sea.
13. Establish a marine spatial plan for Queen Charlotte Sound and Pelorus Sound, including marine protected areas and protections for blue cod, scallops, crayfish, kelp and other important species.¹³⁹

E. Integrating land and ocean policy

14. Consider ways to build capability within the existing system to implement and enforce regulations to reduce land-based sources of marine pollution. Key areas of focus include agricultural and urban runoff, minimising plastic,¹⁴⁰ fertiliser,¹⁴¹ sewage¹⁴² and forestry slash (forestry waste product, debris and logs).¹⁴³

F. Undertaking new research

15. Research ways to sequester blue carbon,¹⁴⁴ and encourage the government to include blue carbon in our Nationally Determined Contribution.¹⁴⁵
16. Support the Sustainable Seas National Science Challenge by researching the extent to which seaweed can be farmed and managed while minimising negative impacts.¹⁴⁶

G. Reconsidering animal welfare issues

17. Apply animal welfare protection more explicitly to protect farmed fish from climate change impacts, including setting out standards for euthanasia. The New Zealand Animal Welfare Strategy (2013) should be updated for climate change impacts.¹⁴⁷ The Animal Welfare Act 1999 defines animals broadly to include mammals, birds, reptiles, amphibians, fish, and other aquatic animals.

H. Supporting global initiatives

18. Support the United Nations Environment Assembly to establish a legally binding global plastics treaty to address the whole life cycle of plastic pollution.¹⁴⁸
19. Work globally to establish a network of ocean sanctuaries across the planet. This idea is being promoted by Greenpeace, which is advocating for a UN Global Ocean Treaty.¹⁴⁹
20. Consider and ideally support a global moratorium on seabed mining.¹⁵⁰

WHO?

Minister for Oceans and Fisheries (lead). Government organisations supporting this include regional councils and territorial authorities with coastal boundaries, DOC, the Ministry for Primary Industries (MPI), Land Information New Zealand (LINZ) and the Ministry of Foreign Affairs and Trade (MFAT).¹⁵¹

There is also a wide range of business and non-government organisations interested in this space (such as iwi, QEII National Trust, Greenpeace, Fish and Game New Zealand, the Game Animal Council, the Environmental Defence Society and other community groups).

A key tool will be implementing the scope of our national climate commitments and Te Mana o te Taiao (New Zealand Biodiversity Strategy), which sets a strategic direction for the protection, restoration and sustainable use of biodiversity.¹⁵² The strategy was ranked very highly in the Institute’s Government Department Strategy Index (10 out of 221).¹⁵³ In contrast, the New Zealand Animal Welfare Strategy, mentioned in G:17 above, was ranked 171st equal out of 221.

Given their national significance, we suggest starting with the Hauraki Gulf and the Marlborough Sounds.

Table 6: Strengthen ocean policy

Cross-cutting theme	How the BIG policy action aligns with each cross-cutting theme
Governance	<ul style="list-style-type: none"> • Leadership and new forms of protection will need to be developed for our territorial sea. • Several action points will require a level of engagement with the UN and other international organisations.
Democracy	<ul style="list-style-type: none"> • Implementing this idea will be challenging as it will require a high level of engagement with landowners, iwi, the wider community and policy analysts. It is also complicated by the fact that no one owns oceans – so it is much harder to influence outcomes than with private land. • Learning about our marine flora and fauna will help citizens connect with and protect our ocean environment. • A challenge-led approach should help unite the country, enabling us to achieve a shared goal.
Social cohesion	<ul style="list-style-type: none"> • It provides a great opportunity for the wider community to work together towards a shared outcome.

Cross-cutting theme	How the BIG policy action aligns with each cross-cutting theme
Biosphere	<ul style="list-style-type: none"> • A positive outcome for marine flora and fauna.¹⁵⁴
Workforce	<ul style="list-style-type: none"> • This will require expertise and skills in new and emerging sectors, such as seaweed farming, restorative aquaculture and offshore energy production (e.g. wind farms). • It will require ongoing management and health monitoring of the ocean ecosystem. • It will require applied, cross-disciplinary education at both school and tertiary levels.
Welfare and tax	<ul style="list-style-type: none"> • Welfare: <ul style="list-style-type: none"> – Many coastal communities are economically challenged and situated in isolated parts of New Zealand. This should provide employment for those currently in need of welfare support and build their skill base for lifetime careers, thus improving their mental and physical health. – Seafood will be easy to access, of good quality and consistent. • Tax <ul style="list-style-type: none"> – Explore a pay-for-service approach. – Subsidise positive environmental outcomes. For example, see GreenWave’s Kelp Climate Fund – a subsidy for ocean farmers to support a bundle of climate impacts.¹⁵⁵ – Recognise ecosystem service benefits from some marine sectors such as mussel, oyster, and seaweed aquaculture. There is an opportunity to develop a pay-for-service approach to offer additional financial support to encourage transition to environmentally beneficial businesses.
Prosperity	<ul style="list-style-type: none"> • Tourism: Both national and local communities will gain benefits. • Traditional food should become easier to access. • Fisheries: Fish caught and sold will be more sustainable, and therefore can be sold at a premium, if marketed well. • Other small and big businesses: This will create a cascade of benefits, such as roading and accommodation along coastal boundaries as we work to understand and optimise our territorial sea and protect our EEZ. • Local infrastructure: As the number of people living in isolated areas increases, the rates and resources for councils will also increase. • Branding: On the global stage this would remove the emerging stigma that New Zealand is not walking the talk in terms of protecting the environment. This would show we are serious about acting out our values. It would create spill-over branding benefits for our exports.

BIG Policy Action #7: Future fit

This specific policy action directly targets the cross-cutting theme of ‘governance’, to establish the broader governance ecosystem for all sustainable wellbeing-focused policies to be properly prioritised, funded, implemented, and evaluated.¹⁵⁶

BROADER CONTEXT

What are the BIG changes we need to implement to make our wider governance and government arrangements fit for purpose: balancing the interests of future generations with those of the current generation, taking a systems approach, accounting for the interconnectedness and interdependence of both policy outcomes and policy interventions, while following genuinely collaborative and inclusive decision processes?

At the heart of this reimagined governance and government arrangements is a set of institutions that are deliberately created to be the stewards for the sustainable wellbeing of New Zealanders, current and future, and are protected from the political pressures of the day. It is precisely in this spirit that Parliament previously legislated the Reserve Bank of New Zealand Act 2021 and the Public Finance Act 1989, but there is a lot more to be done. The good news is, we can learn a lot from the rest of the world – we do not have to reinvent the wheel.

Good governance alone cannot deliver the wellbeing outcomes we are looking for – it needs to be complemented and supported by good government. A trusted, competent, effective, efficient public service with a stewardship ethos provides the crucial buckle which fastens good governance to good government.

WHY?

You can actually have a creative and dynamic civil service ... By design, we're making it much more interesting to work in the Googles, the Goldman Sachs and the McKinseys. How do you revive the civil service? It's not by the Dominic Cummings 'we need geeks in government'. It's by changing the remit of government. We need to make it really cool.¹⁵⁷

– Economist Mariana Mazzucato

Exploring ways to make the public service ‘cool’ and future-focused brings to mind a number of underlying questions for consideration.

- How can we make the public service attractive and ‘cool’ to graduates and trained professionals, particularly those interested in resolving both intergenerational and intragenerational challenges? Intergenerational refers to challenges which exist between generations while intragenerational refers to challenges between members of a single generation.
- How can politicians create an authorising environment so that public sector organisations can deliver on their functions? The public sector has a critical role to play in creating the right enabling environment, one that aligns funding and finance with resilience goals. This authorising environment is likely to come in different forms and from different sources but it should enable the public service to look ahead into the future, bring the future to the

decision-making table, and make strategic long-term investments; we need an enabling environment that acknowledges transformative change is needed.

- How can governance in Aotearoa New Zealand become more conducive to enhancing the citizens' overall wellbeing across generations? Sustainable development was defined in the World Commission on Environment and Development's 1987 Brundtland report as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs'¹⁵⁸ – i.e. that protects and enhances intergenerational wellbeing – our current policies are not delivering this outcome.¹⁵⁹ We are missing the broader governance framework and supporting institutions to pursue the policy objective of intergenerational wellbeing.
- How can the public service create a durable, reliable, consistent, trusted, informed and flexible workforce?
 - The significant use of consultants by the public service is a symptom that the system is failing to build capability. Further, there appears to be a lack of clarity in the public service as to when consultants are appropriate and needed and when they are not.
 - Technology plays an important part in capacity building. It can be used to solve some poor performing areas of the public service (e.g. housing and medical wait-lists) but also, more than ever, complex issues such as climate change.
 - With increasing threats of hacking, bad actors, and the challenges of increasingly complex problems, there is urgent need for government to invest in the latest policy tools and technological expertise.
- How can we focus on fostering our public service leaders to think long-term? While we reshape and make our governance institutions better fit for purpose, how can we equip leaders to not discount the future when making public policy decisions? Officials often prioritise the needs of current generations in their policy decision-making (e.g. climate change); this needs to change.¹⁶⁰ There is currently a lot of talk of 'bread and butter' politics, but this overlooks the fact that many of the major challenges we face, such as housing, poverty, climate change and urban flooding, are the result of this 'here and now' short-termism. The pursuit of intergenerational wellbeing (i.e. the wellbeing of both current and future generations) requires institutions that are fit for the purpose of genuine stewardship.

HOW?

Below we provide a brief description of the critical institutional transformations that are required, in the New Zealand context, to make our governance and government arrangements fit for the purpose of stewardship.

A. Investing in basic governance and management skills, and experience

1. Build the literacy of all parliamentarians and political staff in policy development/ commissioning/foresight/futures studies.
2. Provide opportunity for more sabbaticals for the public sector. Public sector leaders can get burned out due to events and/or busy minister/CEO.

3. Provide options for practical work experience to be gained at the coalface in challenged communities for short periods, so that officials gain insights and innovations from members of society, in order to understand underlying drivers and community solutions.
4. Create short-term private-sector placements for public servants (and vice versa) in order to cross-pollinate the public and private sectors, thus building a team that is better able to work together towards solving complex challenges or optimising opportunities.
5. Review and consider the Singapore approach to building foresight capability in the public service.¹⁶¹ Singapore has a well-established and funded Centre for Strategic Futures. The Centre aims to build a strategically agile public service ready to manage a complex and fast-changing environment.¹⁶²
6. Provide more guidance on benefits, costs and risks, especially ability to better undertake risk assessments and communicate risks.
7. Prepare a regular and independent assessment of national risks facing the country and table the report in the House. This idea has been an ongoing area of public interest and debate. See, for example, the work of botany professor Sir Alan Mark, poet Brian Turner, and energy expert Associate Professor Bob Lloyd.¹⁶³

B. Transforming governance institutions

8. On behalf of the citizens of the country, current and future, Parliament should unanimously specify the pursuit of sustainable intergenerational wellbeing as the core objective of good governance. Although material prosperity is an integral part of wellbeing, also critically important are non-material criteria (i.e. mana-enhancing dimensions of wellbeing: the mana of individuals, whānau, and communities).¹⁶⁴
9. To give credibility and effect to this commitment, form a cross-Parliament Parliamentary Governance Group (PGG) as a steward for intergenerational wellbeing.
10. Have the PGG advised by an advisory group that is genuinely diverse (in the broadest sense of that term), representing all the people of the country, including future generations through youth representation.
11. Develop and regularly communicate a shared narrative (by the PGG) as to why it is imperative that we look after the environmental, social, and economic health of our nation in a coordinated way, for our collective wellbeing now and into the distant future.
12. Make every level of government (local, regional, and central) accountable to the corresponding governance body in presenting a coherent programme of initiatives to give effect to this shared narrative, by pursuing policies that aim to achieve sustainable intergenerational wellbeing.
13. Enact legislation, similar to the Well-being of Future Generations (Wales) Act 2015, to require the public service to actively consider the long-term security of sustainable intergenerational wellbeing within policy.

14. At an operational level, the new cross-Parliament Parliamentary Governance Group (PGG) would be advised by an independent Parliamentary Commissioner for Intergenerational Wellbeing (PCIW), emulating Wales or Finland,¹⁶⁵ on whether the Government's programme of work is consistent with the pursuit of sustainable intergenerational wellbeing. For example, the current Productivity Commission could be converted to a PCIW for New Zealand. It could also borrow ideas from Singapore's Futures Units, which have a stewardship function within the public service and can facilitate foresight thinking, including developing meta-trends and national scenarios to inform 20–50-year policy pathways.
15. In terms of reflecting the wellbeing of future generations in our current decisions, an option to consider is creating ecological, climate, and social policy discount rates. Economists use discounting to weigh the pros and cons of getting things sooner rather than later, such as in the case of costing carbon. 'A high discount rate places less value on the future and results in a lower social cost of carbon. A low discount rate, conversely, places a greater emphasis on the benefits of avoided emissions to future generations, and therefore results in a higher social cost of carbon. These social costs are then used in cost-benefit analyses of proposed projects or policies.'¹⁶⁶
16. Consistent with the Parliamentary Commissioner for the Environment's (PCE's) recent report,¹⁶⁷ we need to ensure broader, systemic conversations about public policy, including exploring ways of instituting new substantive commitment devices, along the lines recommended by Jonathan Boston.¹⁶⁸
17. The PCIW itself is advised by the equivalent of the UK What Works Wellbeing institute (which provides a warehouse for all the policy-informing research in this broad area). The PCIW's reports are made public.
18. The measures of effectiveness, efficiency and equity of the policy programme proposed by the government (to be used by the new PCIW) would be based on the development and operationalisation of metrics of resilience (environmental, social, human, and economic resilience) – assisted by Stats NZ.
19. The Productivity Commission and the Auditor-General are calling for a first principles review of the accountability settings within the public management system. In line with this development, we have an opportunity here to rethink some of the independent commission functions (e.g. should the Infrastructure Commission be responsible for climate change adaptation and a systemic investment fund?) As we are seeing in Auckland, we need to address systems problems, with systems solutions.
20. The Infrastructure Commission (IC) acts as the governance group for all major infrastructure projects (with 'infrastructure' conceptualised and operationalised to include environmental, social, and economic infrastructure) that require government funding, and reports to the PGG.
21. We could establish a long-term dedicated investment fund (along the lines of the Scottish National Investment Bank)¹⁶⁹ as a transition intermediary to enable public–private sector partnerships at scale, addressing challenges such as energy inequality, climate change adaptation finance and redeveloping our bio-economy.¹⁷⁰ Agencies from every level of governance and government (local, regional, national) can bid for these funds.

22. The assessment and prioritisation of proposed infrastructure projects (properly informed by models that show the interdependencies of various investments in generating wellbeing outcomes) is based not only on cost-benefit analyses in terms of outcomes, but also on the additional criteria of:
- just and viable transitions, supported by a detailed implementation plan – ‘transition engineering’
 - inclusive engagement with all stakeholders in all key decisions
 - appropriate public and private funding arrangements.
23. The Infrastructure Commission (IC) also monitors the health of the infrastructure of the country (‘infrastructure’ broadly defined), working very closely with the new PCIW. Its reports are made public.
24. The ‘Ministry of Works’, or its equivalent, coordinates and monitors infrastructure investments to ensure that they are delivered effectively, efficiently and on time.
25. Revisit and redesign the Provincial Growth Fund (PGF) to help tackle regional inequality in poorer regions.¹⁷¹ This could build on the ‘Levelling Up’ idea that has been successful in the UK.¹⁷²
26. Consider councils holding a more significant role in the housing market, particularly social housing.¹⁷³

C. Investing in resilience, anti-fragility, and foresight

Note: The following list of ideas may be something the Productivity Commission might like to consider and recommend in its upcoming report on New Zealand’s economic resilience to persistent supply chain disruptions.¹⁷⁴

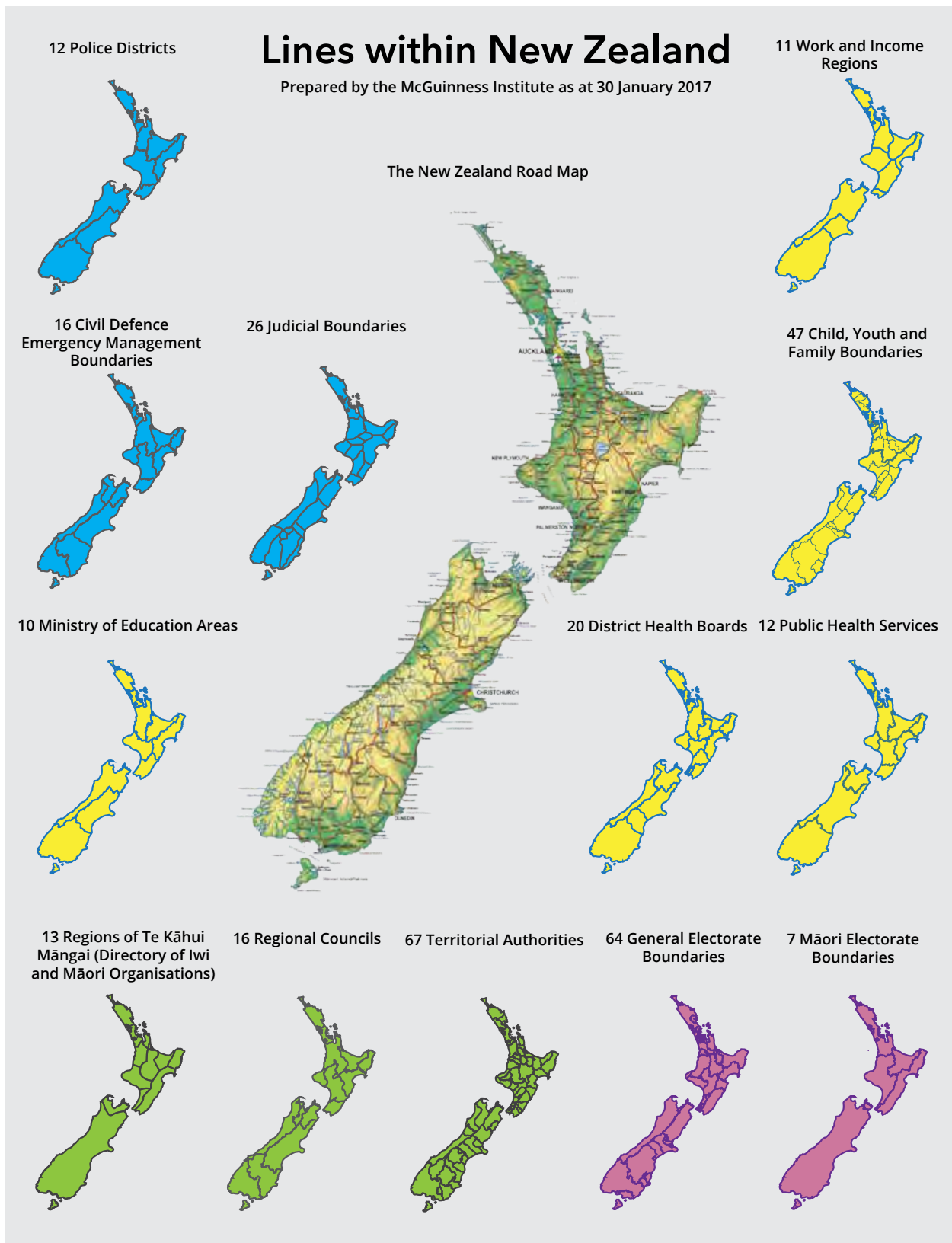
28. Consider legislating a Global Catastrophic Risk Management Act. Lawmakers in the United States have recently passed the US Global Catastrophic Risk Management Act, which requires a broad assessment of all such risks within one year and every ten years thereafter. The Act defines global catastrophes as well as existential risks to human civilisation, namely: severe global pandemics, nuclear war, asteroid and comet impacts, supervolcanoes, sudden and severe changes to the climate, and intentional or accidental threats arising from the use and development of emerging technologies.¹⁷⁵
29. Establish an Office of Supply Chain Resilience (following the Australian Government example) to identify and monitor critical supply chain vulnerabilities.¹⁷⁶
30. Identify critical products, services and skills that are required in the country at all times, and then determine the best ways to ensure they are manufactured or retained in New Zealand.
31. Undertake sensitivity analyses on supply and export risks to understand what is important to watch, hoard and/or manage, for example, the additional cost of shipping containers or air transport. Identify when certain types of exports become uneconomic, and what alternative uses/options exist.
32. Analyse the WHO *Model Lists of Essential Medicines*. The goal is to identify what medicines are not made in New Zealand or Australia and either consider ways to manufacture those products domestically or secure products/contracts in advance from trusted suppliers.¹⁷⁷

33. Seek to join the Supply Chain Resilience Initiative, which is an international collaboration between Australia, India and Japan, whose aim is to promote best practice national supply chain policy and principles in the Indo-Pacific.¹⁷⁸
34. Build on the climate change reference scenarios discussed in the 'get climate ready' policy action. The reference scenarios should be national in nature and be required to illustrate what 2040 might look like with no major change in policy. They are to provide a framework for the reporting of government departments, local authorities, and businesses so that there is an aligned and informed focus on decision making.
35. Align foresight, strategy and reporting between central and local government. Local authorities are required to publish material, such as long-term plans and regional policy statements, that set time horizons for the decision-making and objectives of the council. These are guided by other documents, such as National Policy Statements. However, there appears to be a lack of alignment in the time horizons set by different types of plans published by local authorities. This is an issue as these documents should be providing the focus for the decisions and activities required to meet objectives and goals. There are three ways to shape the plans: reporting against a time period (e.g. ten years), reporting against a milestone (e.g. achieving a specific outcome), or reporting against a particular future time (e.g. 2040). We consider the latter is more conducive to improving outcomes, enabling us to refocus on the actions we can take to reach the same outcome. Focusing all plans on a particular year in the future would align critical council plans and policies, and improve the shape of decision-making by government departments.
36. Aligned with the above, we consider government departments should be required to provide forward-looking plans of at least ten years. Such an approach would help align public policy decision making and help central government to be fit for the future.
37. Realign governance boundaries nationwide so that communities are better positioned to drive change and implement solutions to issues such as health, justice, general electorates, education, civil defence emergency management, etc. Figure 7 opposite illustrates the number of different governance boundaries that existed in 2016. The infographic suggests how difficult it is to solve complex problems when there is poor alignment.
38. Appoint a 'National Risk and Resilience Officer' for government, to mirror the increasingly important role of the Chief Risk Officer in the private sector (see discussion in Section 2.2).
39. Establish a 'foresight review service', by asking a cohort of department staff under 30 to test public policy from a length of work perspective (e.g. 45 years is the average length of a career). Such an approach would help ensure the public service looks out at least 45 years and knowledge about those policy decisions is embedded in the public service over that time. (See Goal 1.9 in Section 4.2.)
40. Establish a Royal Commission on the Cost of Living (similar to 1912). (See Goal 6.5 in Section 4.2.)

Table 7: Future fit

Cross-cutting theme	How the BIG policy action aligns with each cross-cutting theme
Governance	This action is about ensuring that all our governance systems, and supporting institutions, are aligned with intergenerational wellbeing.
Democracy	Effective and inclusive democracies, especially those that are able to give voices to future generations, will have a far better chance of installing governance institutions that are aligned with sustainable intergenerational wellbeing.
Social cohesion	If we can establish the governance institutions listed in this section, to the extent that they put a huge emphasis on inclusive decision-making processes and the wellbeing of future generations, they will contribute critically to social cohesion.
Biosphere	Governance regimes that have sustainable wellbeing as their objective will naturally place a huge emphasis on the sustained health of the biosphere – without which there cannot be sustained life.
Workforce	The implementation of effective and efficient sustainable policies will require a re-skilling of the workforce so that we are able to work with technologies that are biosphere-friendly.
Welfare and tax	The tax and welfare system can and should be used to support sustainable wellbeing policies – through the channels of increasing equity, as well as switching consumption and production towards ‘clean’ consumption goods and technologies.
Prosperity	Material prosperity would be affected by the tax and welfare system, and broader wellbeing prosperity would be positively affected by all of the above.

Figure 7: Lines within New Zealand¹⁹⁷



6.0 Implementation checklist for BIG policy actions

6.1 Introduction

Having proposed seven BIG policy actions, it seems appropriate to also share a few thoughts on lessons for implementing big, audacious policy actions. The goal must be to maximise the chances that BIG policy actions enjoy an enduring ‘shelf life’ given the polycrisis we face today.

Atul Gawande, in his book *The Checklist Manifesto: How to get things right*, explores how experts could deliver better outcomes when faced with increasing complexity. Gawande makes the distinction between errors of ignorance (mistakes we make because we don’t know enough), and errors of ineptitude (mistakes we make because we fail to make proper use of what we know). He believes failure is largely due to the second: our inability to reflect, analyse, assess, and learn lessons.¹⁷⁹

Based on what we learned about current and past Think Big projects and initiatives, and the latest policy innovations, we make the following suggestions.

6.2 Checklist

Below is a high-level checklist, with very brief commentary.

Political commitment

If such a narrative has the unanimous support of all political parties, it would provide a strong platform for stability and resilience as we collectively travel to an unknown, and unknowable, future. The government must portray a strong, inclusive and ongoing political commitment to a course of action at the highest political level and, in so doing, foster whole-of-government action and support.

Shared narrative (including a set of clear goals and objectives)

It is essential that a country has a shared sense of direction, underpinned by shared core values, and reflective of its unique history.

Supportive governance arrangements

The design of the programme’s governance arrangements should be consistent with the principles of good governance. Furthermore, national and regional institutions should support each other to achieve the BIG policy actions.

Anticipatory governance arrangements

Embedding the application of strategic foresight throughout the entire governance architecture, including policy analysis, engagement, and decision-making is important in order to forward engage with issues before they become problematic. There is a distinction between looking backwards (rear-facing monitoring) and forward-facing horizon scanning.

Stakeholder engagement and inclusive processes

For sustainability, it is imperative that such a shared narrative be developed through processes that are inclusive, involving all key stakeholders.

Financial budgets and controls, and a detailed feasibility study

It is imperative that financial budgets and controls are agreed early, measured and managed.

Key institutions

BIG policy actions are likely to require a number of institutions to work together. It will be important for each institution to understand how their individual and collective roles and responsibilities coexist. This means not only that each institution has a clear set of roles and responsibilities but that it is clear who is responsible for ensuring the ecosystem achieves the desired outcome. This is likely to require a lead role for one (or two) institutions, which have the ability to call poor performance to account or remove obstacles embedded in the existing system. Given this, some form of institutional map might be useful.

Co-designed investment prioritisation processes

The implementation of any policy programme will require a series of investments – often, long-term investments. The prioritisation of these investments needs to be supported by both analytical capabilities and genuinely inclusive processes that draw on the expertise and experiences of all stakeholders.

Appropriate (co-)funding

Each policy programme needs to be adequately and appropriately funded. Long-term infrastructure investments especially will require substantial central and regional government contributions. However, to align incentives, it is important to always explore co-funding arrangements with the private sector.

Clear and transparent accountabilities for delivery

Clear and transparent accountabilities need to be established for what outcomes will be delivered, when, by whom, and at what cost. It is critical that regular public reporting against these accountabilities takes place.

Effective and efficient implementation

Some institutional infrastructure that ensures the effective and efficient implementation of all major projects is essential. It is in this context that in Section 2.4.1 we remind ourselves of the role that the Ministry of Works played for over a century in New Zealand.

Ongoing (independent) evaluation

There needs to be an independent set of institutions that evaluate the programmes and report on them publicly and on a regular basis. Is the programme working; is it delivering the outcomes it was set up for; are we getting value for money (with 'value' broadly defined)?

Seek out challenge-led policy options (also called purpose- or mission-led policy)

As part of the implementation process there is a growing body of theory and practice (e.g. case studies) discussing and illustrating how to (and how not to) implement mission-oriented innovation. Many of the BIG policy actions lend themselves to being reshaped into one or more missions. Marco Steinberg from the Harvard Design School noted ‘Missions are a strategic mechanism to help set up the right ambition, acceleration and integrative frame for the change ahead.’¹⁸⁰ Those considering one or more of the BIG policy actions may like to explore this idea further.¹⁸¹

Reporting and measuring: regular, milestone-setting and reporting against a year (or other time period) in the future

BIG policy actions are a key investment in the country’s long-term future. They require our care and fortitude. We suggest a Minister be made responsible for each BIG policy action and also be required to report on this to Cabinet and the country. Further, milestone reporting is an extremely valuable tool for sharing and reviewing outputs and outcomes. Unlike regular reporting, the focus then becomes the implementation and action point (i.e. what worked and what did not).

Lastly, it is critically important to prepare budgets and report against those budgets in a meaningful way.¹⁸² Implementing BIG policy actions will be challenging and mistakes will be made – hence why timely reporting is essential to be able to tweak policy actions during times of complexity.

Appendix 1: Issues shaping the public narrative – based on New Zealand media, patrons and international documents

Below is a list of public concerns that have tended to dominate the political conversation in the media, in early 2023. This is not a complete list, nor is it based on any analytical method.¹⁸³ See Figure 1 in Section 1.3.1 above.

Table 8: List of key issues shaping the public narrative

Key issue	Examples of issues shaping the public narrative
Business	jobs; immigration; seasonal workers; cyber security; supply-chain issues
Climate change	biodiversity; flooding; slips; fires; urban design; roading infrastructure
Co-governance	what does it mean? Who decides? And what is the output/outcome?
Cost of living	real incomes; real wages; rent; food
Crime	sentencing lengths; sexual assaults; city violence; police shortages
Disinformation	role of social media (New Zealand experienced a small taste of this in 2022 but it will not go away)
Education	school attendance; mental health/counselling; trade shortage/training
Health	pandemic (including long COVID); hospital and clinic wait times; doctor and nurse shortages; vector-borne diseases ¹⁸⁴
Housing	supply issues; healthy houses; affordability; rental costs and rental/ownership options
Three waters	quality; quantity; access; ownership; management
Voting	16+; Māori seats/roll

These have influenced the shaping of the cross-cutting themes discussed in Section 4.2.

Appendix 2: Megatrends and wild cards

This appendix aims to identify trends, weak signals (e.g. emerging technologies or behaviours) and wild cards (e.g. low probability/high magnitude events) shaping the challenges and opportunities facing public policy.

The *Economist* publishes an annual review of the world in the preceding year and makes predictions for the year ahead. In late 2018, they published *The World in 2019*. It illustrates the distinction between weak signals and wild cards.

In late 2018 neither the *Economist's World in 2019* nor the *World Economic Forum Risk Report 2019*¹⁸⁵ discussed the likelihood or impact of a pandemic. Although epidemiologists had argued that a pandemic might occur in the near future, this was not acknowledged in the wider public discourse. For epidemiologists the pandemic was a weak signal (something new on the horizon).¹⁸⁶ However, for the general public, when it did occur in 2019, it was considered a wild card event (something that had a low probability of occurring).




So while a weak signal may over time become a trend or megatrend, not all wild cards become a trend, and very few trends become a megatrend. A trend refers to a direction of travel that is highly likely to bring about significant change over time. Trends have a pattern, for example they may be exponential or stable, linear or stepped, specific or broad, increasing or decreasing. A megatrend is simply a globally accepted and significant trend of scale. Most futurists and strategists focus on identifying weak signals and watching how weak signals, trends and megatrends might evolve in terms of their general direction, pace and potential impact. Pace is about patterns; the pace may be ad hoc, phased or exponential. A staircase is figuratively a great example of exponential - the faster you climb the steeper it gets; in some areas we are seeing rapid rates of change.

Futurists also talk in terms of second and third tier effects. Climate change is a trend that produces and will produce a number of second, third and fourth tier effects, etc – as our climate affects everything. For this reason, climate change impacts belong more comfortably with trends than wild cards, due to the level of certainty.

The list below has been sourced from various public documents – they are broadly aligned with the trends, concerns, opportunities and threats identified by our patrons, as well as the other sources cited in Section 4 of this report.¹⁸⁷

Table 9: List of megatrends

Type of megatrend	Examples of megatrends
 Consumer Behaviour	<ul style="list-style-type: none"> • Frictionless retail • Change in diet (e.g. uptake of plant-based milks) • Connected health • Change in education and work
 Digital World	<ul style="list-style-type: none"> • Information overload • Data as a moat • Cyber's Wild West • Technology exacerbating inequality • Cybersecurity risks
 Economy and Financial Markets	<ul style="list-style-type: none"> • Indebted world • Rising interest rates • Central bank impotence • Stock market concentration • Dwindling corporate longevity • Sustainable investing • Recession looming
 Geopolitical Landscape	<ul style="list-style-type: none"> • Bipolar world • Peak globalisation • Splinternet • Large-scale involuntary migration • Growing divergence and polarisation within and across countries • Fragmentation of the global system • Shifts in economic power (towards Asia and Africa) • The rise of gullible leaders and gullible followers

Type of megatrend	Examples of megatrends
 Natural Environment	<ul style="list-style-type: none"> • Climate pressures • Extreme weather: hotter, colder, wetter, dryer are first level effects, known also as rising temperatures (land and ocean), flooding and slips, wildfires, heatwaves, air turbulence and rogue waves. Second level effects are reduced production, supply chain issues, less diversity, transport issues (e.g. impacting tourism), more diseases in humans (e.g. dengue fever) and in animals (e.g. new viruses). • Biodiversity degradation • Water, food and energy crises • Electrification of everything
 Society and Demographics	<ul style="list-style-type: none"> • Aging world • Urban evolution • Rising middle class • Decentralisation of media • Rising wealth inequality • Mental health deterioration • Regional inequality • Increasingly divided society
 Technological Innovation	<ul style="list-style-type: none"> • Artificial intelligence (e.g. ChatGPT) • Robotics and automation • The 5G revolution • The new space race • CRISPR: gene editing at scale • Lab meat and protein (e.g. made in tanks close to large populations)

Weak signals, trends and megatrends generally tend not to evolve from wild cards, but our response to a wild card can accelerate a trend (e.g. the pandemic has accelerated the trend to work from home). Wild cards tend to be binary in nature; they are often irreversible, remain relatively difficult to predict and tend to have a negative impact.¹⁸⁸ Wild cards are sudden events that create a significant change; they are often described as low probability/high magnitude events.¹⁸⁹ Importantly, when an event has a higher probability of occurring (e.g. the Alpine Fault)¹⁹⁰ it would not be considered a wild card. There are many global lists, but examples particularly specific to New Zealand include:

Table 10: List of wild cards

Type of wild card	Examples of wild cards (often negative, but can be positive)
 Attacks	<ul style="list-style-type: none"> • Cyber-attack (e.g. on banks or government) • Protests, poisoning or bombing on key institutions or infrastructure (e.g. Parliament buildings or power stations)
 Health	<ul style="list-style-type: none"> • Cure for all cancer • New antibiotic (or equivalent medical breakthrough) • Treatments that significantly lengthen life • Severe pandemic (natural or engineered) from a bacteria, virus or even a fungus^{191, 192, 193, 194} • Novel dairy or cattle disease (with milk or meat impacting the health of humans)
 Nation states	<ul style="list-style-type: none"> • A climate change invasion (e.g. a large nation state attempts to take possession of New Zealand). • New Zealand becomes a state of Australia • Collapse of international governance (e.g. UN)
 Environment and society	<ul style="list-style-type: none"> • Asteroid or comet hits earth • Stellar explosion, including a solar flare • Super volcanic eruption in highly populated area (e.g. Auckland or Taupō). Such an event would likely result in significant fatalities and long term negative impacts on food production for years to come.¹⁹⁵ Responses could include mobile burns unit and diverse food production located in several parts of the country. • Major earthquake/tsunami in city centre (e.g. Wellington) • A novel and cost-effective technological solution to climate change • Aquifers become significantly contaminated • First contact with extraterrestrial life (ET)
 Nuclear war	<ul style="list-style-type: none"> • Global tensions give rise to a nuclear war¹⁹⁶ in: (i) the northern hemisphere only, (ii) the southern hemisphere (e.g. Australia) or (iii) both
 Trade and the economy	<ul style="list-style-type: none"> • Identification of a new low-carbon energy source • International carbon tax on exports/imports • Creation of a Pacific Union (modelled on the EU) • Precision protein fermentation ending the global dairy and livestock industries • Cost effective and scalable fusion power generating electricity by using heat from nuclear fusion reactions

Endnotes

- 1 See Lecompte, F. (4 September 2020). Uncertainty is Intrinsic to the Human Condition. *CNRS News*. Retrieved 16 February 2023 from <https://news.cnrs.fr/articles/uncertainty-is-intrinsic-to-the-human-condition>
- 2 See Lecompte, F. (4 September 2020). Uncertainty is Intrinsic to the Human Condition. *CNRS News*. Retrieved 16 February 2023 from <https://news.cnrs.fr/articles/uncertainty-is-intrinsic-to-the-human-condition>
- 3 See Serhan, Y. (17 January 2023). Why 'Polycrisis' Was the Buzzword of Day 1 in Davos. *Time*. Retrieved 16 February 2023 from <https://time.com/6247799/polycrisis-in-davos-wef-2023>
- 4 See World Economic Forum. (January 2023). *Global Risks Report 2023*, p. 57. Retrieved 16 February 2023 from <https://www.weforum.org/reports/global-risks-report-2023>
- 5 See Tooze, A. (29 October 2022). Welcome to the world of the polycrisis. *Financial Times*. Retrieved 16 February 2023 from <https://www.ft.com/content/498398e7-11b1-494b-9cd3-6d669dc3de33>
- 6 See National Emergency Management Agency. (2023). *Factsheet: Declaring states of local emergency*. Retrieved 16 February 2023 from <https://www.civildefence.govt.nz/assets/Uploads/publications/Declarations/Factsheet-declaring-states-of-local-emergency.pdf>
- 7 See Vaughan, G. (14 February 2023). National State of Emergency declared in response to Cyclone Gabrielle. *Interest.co.nz*. Retrieved 16 February 2023 from <https://www.interest.co.nz/public-policy/119648/national-state-emergency-declared-response-cyclone-gabrielle>
- 8 See McClure, T. & Graham-McLay, C. (14 February 2023). New Zealand minister decries climate crisis 'lost decades' in wake of Cyclone Gabrielle. *Guardian*. Retrieved 16 February 2023 from <https://www.theguardian.com/world/2023/feb/14/new-zealand-minister-delivers-furious-speech-about-lost-decades-spent-bickering-over-climate-crisis>
- 9 See, for example, the Parliamentary Commissioner for the Environment. (14 December 2021). *Wellbeing budgets and the environment: A promised land?*, pp. 111–112. Retrieved 13 February 2023 from <https://pce.parliament.nz/media/lxgb4pt5/wellbeing-budgets-and-the-environment-report-pdf-225mb.pdf>
- 10 See Hawke's Bay Regional Council. (2023). Climate Action Hub. Retrieved 17 February 2023 from <https://www.hbrc.govt.nz/environment/climate-actionhb/>

See LGNZ. (August 2019). *Exposed: Climate change and infrastructure – Guidance for councils*. Retrieved 20 February 2023 from <https://www.lgnz.co.nz/assets/Uploads/6ed34721bd/LGNZ-2019-CC-guidance-document-FULL.pdf>

See also Simonson, T. & Hall, G. (January 2019). *Vulnerable: the quantum of local government infrastructure exposed to sea level rise*. LGNZ. Retrieved 20 February 2023 from <https://www.lgnz.co.nz/assets/Uploads/d566cc5291/47716-LGNZ-Sea-Level-Rise-Report-3-Proof-FINAL-compressed.pdf>

See also LGNZ. (May 2018). *Climate change and natural hazards decision-making – A legal toolkit for councils*. Retrieved 20 February 2023 from <https://www.lgnz.co.nz/assets/Uploads/55719615a2/46292-LGNZ-Climate-Change-Natural-3-Proof.pdf>
- 11 See OECD. (2005). *Modernising Government: The Way Forward*, p. 13. Retrieved 21 February 2023 from https://read.oecd-ilibrary.org/governance/modernising-government_9789264010505-en#page1
- 12 See Chatterjee, P. (9 January 2023). Ozone layer may be restored in decades, UN report says. *BBC News*. Retrieved 25 January 2023 from <https://www.bbc.com/news/science-environment-64215660?ref=for-what-its-worth>
- 13 See United Nations Environment Programme (UNEP). (9 January 2023). Ozone layer recovery is on track, helping avoid global warming by 0.5°C [press release]. Retrieved 25 January 2023 from <https://www.unep.org/news-and-stories/press-release/ozone-layer-recovery-track-helping-avoid-global-warming-05degc>

- 14 See OECD. (15 September 2005). *Modernising Government: The Way Forward – Summary in English*, pp. 3–4. Retrieved 1 February 2023 from www.oecd-ilibrary.org/modernising-governmentsummary-english_5lgjismw5hvth.pdf?itemId=%2Fcontent%2Fcomponent%2F9789264010505-sumen&mimeType=pdf
- 15 See OECD. (15 September 2005). *Modernising Government: The Way Forward – Summary in English*, pp. 3–4. Retrieved 1 February 2023 from www.oecd-ilibrary.org/modernising-government-summary-english_5lgjismw5hvth.pdf?itemId=%2Fcontent%2Fcomponent%2F9789264010505-sumen&mimeType=pdf
- 16 See IPCC. (2022). *Summary for Policymakers*, pp. 14–16. Retrieved 10 February 2023 from https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_SummaryForPolicymakers.pdf
- 17 See Statistics NZ. (27 July 2022). National population projections: 2022(base)–2073. Retrieved 11 February 2023 from <https://www.stats.govt.nz/information-releases/national-population-projections-2022base2073>
- 18 See World Economic Forum. (January 2023). *Global Risks Report 2023*, p. 57. Retrieved 25 January 2023 from https://www3.weforum.org/docs/WEF_Global_Risks_Report_2023.pdf
- 19 See World Economic Forum. (January 2023). *Global Risks Report 2023*, p. 57. Retrieved 25 January 2023 from https://www3.weforum.org/docs/WEF_Global_Risks_Report_2023.pdf
- 20 See World Economic Forum. (January 2023). *Global Risks Report 2023*, p. 69. Retrieved 25 January 2023 from https://www3.weforum.org/docs/WEF_Global_Risks_Report_2023.pdf
- 21 See UK Government Office for Science. (2021). *A brief guide to futures thinking and foresight*, p. 1. Retrieved 18 February 2023 from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1113574/A_Brief_Guide_to_Futures_Thinking_and_Foresight_-_2022.pdf
- 22 See UK Government. (7 February 2023). *Making Government Deliver for the British People: Updating the machinery of government for the world of today and of tomorrow*. UK Policy Paper. Retrieved 18 February 2023 from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1134989/Making_Government_Deliver_for_the_British_People.pdf
- 23 See Department of the Prime Minister and Cabinet. (9 April 2021). Long-term Insights Briefings. Retrieved 30 January 2023 from <https://dpmc.govt.nz/our-programmes/policy-project/long-term-insights-briefings>
- 24 The New Zealand Futures Trust was established after Prime Minister Robert Muldoon abolished the Commission for the Future in 1982. See Menzies, M. (February 2018). A Partial History of Futures Thinking in New Zealand. *Policy Quarterly*, 14(1), pp. 18–26. Retrieved 16 February 2023 from https://www.victoria.ac.nz/___data/assets/pdf_file/0008/1347236/PQ14-1-Menzies.pdf
- 25 See Menzies, M. (November 2022). Long-term Insights Briefings: A futures perspective. *Policy Quarterly*, 18(4), pp. 54–64. Retrieved 16 February 2023 from <https://ojs.victoria.ac.nz/pq/article/view/8017/7125>
- 26 A table containing all 19 publicly accessible Briefings and information such as their subject topics, time horizons and expected dates to be presented to Parliament can be found on the McGuinness Institute website: <https://www.mcguinnessinstitute.org/ltibs>
- 27 See Department of the Prime Minister and Cabinet. (13 October 2021). Implementation Unit. Retrieved 31 January 2023 from <https://dpmc.govt.nz/our-business-units/implementation-unit>
- See The Treasury. (6 August 2021). Implementation Unit Establishment Information Release. Retrieved 31 January 2023 from <https://www.treasury.govt.nz/publications/information-release/implementation-unit-establishment>
- 28 See Clement, M. (26 August 2022). The Art of Delivery: The Prime Minister’s Delivery Unit 2001–2005. UK Government. Retrieved 13 February 2023 from <https://history.blog.gov.uk/2022/08/26/the-art-of-delivery-the-prime-ministers-delivery-unit-2001-2005/>

- 29 See Clement, M. (26 August 2022). *The Art of Delivery: The Prime Minister’s Delivery Unit 2001-2005*. UK Government. Retrieved 13 February 2023 from <https://history.blog.gov.uk/2022/08/26/the-art-of-delivery-the-prime-ministers-delivery-unit-2001-2005/>
- 30 See Centre for Public Impact. (30 March 2016). *The Prime Minister’s Delivery Unit (PMDU) in the UK*. Retrieved 31 January 2023 from <https://www.centreforpublicimpact.org/case-study/prime-ministers-delivery-unit-uk>
- See also Clement, M. (26 August 2022). *The Art of Delivery: The Prime Minister’s Delivery Unit 2001-2005*. UK Government. Retrieved 13 February 2023 from <https://history.blog.gov.uk/2022/08/26/the-art-of-delivery-the-prime-ministers-delivery-unit-2001-2005/>
- 31 See Clyne, R. (10 May 2021). *The new Prime Minister’s Delivery Unit needs prime ministerial authority and attention*. Institute for Government. Retrieved 1 February 2023 from <https://www.instituteforgovernment.org.uk/article/comment/new-prime-ministers-delivery-unit-needs-prime-ministerial-authority-and-attention>
- 32 See Canterbury Regional Council. (26 October 2021). *Long Term Plan 2021-31*, p. 8. Retrieved 25 January 2023 from <https://www.ecan.govt.nz/your-region/plans-strategies-and-bylaws/long-term-plans>
- 33 This infographic illustrates the number of different types of governance boundaries existing in New Zealand in 2016. This raises the question of whether standardising boundaries would help solve wicked problems such as climate change resilience and poverty. See McGuinness Institute. (November 2016). *Lines within New Zealand*. Retrieved 17 February 2023 from <https://www.mcguinnessinstitute.org/publications/infographics>
- 34 See Wilson, J. (1 September 2016). *Ministry of Works and Development staff. Nation and government – The state sector and Crown entities*. Te Ara – the Encyclopedia of New Zealand. Retrieved 1 February 2023 from <https://teara.govt.nz/en/photograph/2632/ministry-of-works-and-development-staff>
- 35 See Ministry of Works. (24 July 1946). *Report of the Commissioner of Works for the period ended 31st March, 1946. Appendix to the Journals of the House of Representatives, 1946 Session I, D-03*. Retrieved 1 February 2023 from <https://atojs.natlib.govt.nz/cgi-bin/atojs?a=d&cl=search&d=AJHR1946-I.2.2.3.3&srpos=591>
- 36 See Wikipedia. (23 June 2022). *Ministry of Works and Development*. Retrieved 23 February 2023 from https://en.wikipedia.org/wiki/Ministry_of_Works_and_Development
- 37 See, for example, Fonseka, D. (21 December 2022). *Dileepa Fonseka: Could a Ministry of Works help close New Zealand’s multibillion-dollar infrastructure gap?* Stuff. Retrieved 11 February 2023 from <https://www.stuff.co.nz/opinion/130816409/dileepa-fonseka-could-a-ministry-of-works-help-close-new-zealands-multibillion-dollar-infrastructure-gap>
- 38 See Munro, B. (25 May 2020). *Some final thoughts from a ‘virtually forgotten’ political powerhouse*. *Otago Daily Times*. Retrieved 25 January 2023 from <https://www.odt.co.nz/lifestyle/magazine/some-final-thoughts-virtually-forgotten-political-powerhouse>
- 39 See Munro, B. (25 May 2020). *Some final thoughts from a ‘virtually forgotten’ political powerhouse*. *Otago Daily Times*. Retrieved 25 January 2023 from <https://www.odt.co.nz/lifestyle/magazine/some-final-thoughts-virtually-forgotten-political-powerhouse>
- 40 See McGuinness Institute. (March 2011). *Report 11 – A History of Future-thinking Initiatives in New Zealand, 1936–2010 – Learning from the past to build a better future*, pp. 66–67. Retrieved 25 January 2023 from <https://www.mcguinnessinstitute.org/publications/project-2058>
- 41 See McGuinness Institute. (March 2011). *Report 11 – A History of Future-thinking Initiatives in New Zealand, 1936–2010 – Learning from the past to build a better future*, pp. 70–71. Retrieved 25 January 2023 from <https://www.mcguinnessinstitute.org/publications/project-2058>
- 42 See National Research Council. (2012). *Disaster Resilience: A National Imperative*. Washington, DC: The National Academies Press, p. 14.

- 43 See Kay, J. & King, M. (2020). *Radical Uncertainty: Decision-Making Beyond the Numbers*. New York: W.W. Norton & Company.
- 44 See Taleb, N. N. (November 2012). *Antifragile: How to live in a world we don't understand*. UK: Penguin Books.
- 45 See Mazzucato, M. & Wray, L. R. (2015). *Financing the Capital Development of the Economy: A Keynes-Schumpeter-Minsky Synthesis*. Levy Economics Institute Working Paper, No. 837. Retrieved 13 February 2023 from https://www.levyinstitute.org/pubs/wp_837.pdf
- 46 See Mazzucato, M. (10 June 2013). *The Entrepreneurial State: Debunking private versus public sector myths*. Anthem Press.
- 47 See Aghion, P., Antonin, C. & Bunel, S. (2021). *The Power of Creative Destruction: Economic upheaval and the wealth of nations*. (Translated by Jodie Cohen-Tanugi). Belknap Press: An Imprint of Harvard University Press.
- 48 See NIWA. (11 January 2023). *Aotearoa New Zealand Climate Summary: 2022*, p. 2. Retrieved 25 January 2023 from https://img.scoop.co.nz/media/pdfs/2301/2022_Annual_Climate_Summary_FINAL_v2_compressed.pdf
- 49 See Radio New Zealand. (6 March 2023). Auckland floods, Cyclone Gabrielle to cost insurance industry more than \$1b. Retrieved 15 March 2023 from <https://www.rnz.co.nz/news/national/485394/auckland-floods-cyclone-gabrielle-to-cost-insurance-industry-more-than-1b>
- See Lasona, S. (22 February 2023). Police shut down social media speculation over Cyclone Gabrielle's death toll. Newshub. Retrieved 15 March 2023 from <https://www.newshub.co.nz/home/new-zealand/2023/02/police-shut-down-social-media-speculation-over-cyclone-gabrielle-s-death-toll.html>
- 50 See Food and Agriculture Organization of the United Nations. (2015). Climate change and food security: risks and responses. Retrieved 16 February 2023 from <https://www.fao.org/3/i5188e/i5188e.pdf>
- 51 See Rodrik, D. (9 September 2022). Governance for a Healthy Economy. Project Syndicate. Retrieved 27 January 2023 from <https://www.project-syndicate.org/commentary/economic-experimental-governance-proven-track-record-by-dani-rodrik-2022-09>
- 52 See Acemoglu, D. (7 June 2019). Why Universal Basic Income is a bad idea. Project Syndicate. Retrieved 13 February 2023 from <https://www.project-syndicate.org/commentary/why-universal-basic-income-is-a-bad-idea-by-daron-acemoglu-2019-06>
- 53 See Crouch, C. (2020). *Post-Democracy After the Crises*. Cambridge: Polity Press, p. 4.
- 54 See Centre for Public Impact. (31 March 2021). Green Participatory Budgeting: Lisbon, Portugal. Retrieved 25 January 2023 from <https://www.centreforpublicimpact.org/case-study/green-participatory-budgeting-lisbon-portugal>
- 55 See Karacaoglu, G. (2022). *Unity in diversity: Re-imagining governance for sustainable wellbeing*. Amazon: Kindle Direct.
- 56 See Public Service Commission. (2023). Ngā rohe o Te Ratonga Tūmatanui: Public Service in the regions. Retrieved 21 February 2023 from <https://www.publicservice.govt.nz/system/regions/>
- 57 LiDAR surveying is a fast and effective way to capture 3D data. See GeoSLAM. (2023). What is LIDAR Surveying? Everything you need to know. Retrieved 13 February 2023 from <https://geoslam.com/what-is-lidar-surveying/>
- 58 See Swiss Education System. (n.d.). Upper secondary level. Retrieved 25 January 2023 from <https://www.edk.ch/en/education-system-ch/post-compulsory/upper-secondary>
- 59 The hypothecation of a tax is the dedication/recycling of revenue from a specific tax for a particular expenditure purpose (e.g. the ETS). See Wikipedia. Hypothecated Tax. Retrieved 16 February 2023 from https://en.wikipedia.org/wiki/Hypothecated_tax

- 60 See World Bank Group. (January 2023). *Global Economic Prospects*, p. 148. Retrieved 25 January 2023 from <https://openknowledge.worldbank.org/bitstream/handle/10986/38030/GEP-January-2023.pdf>
- 61 What Works Wellbeing is a UK-based independent body for wellbeing evidence, policy and practice: see What Works Wellbeing, retrieved 13 February 2023 from <https://whatworkswellbeing.org>
- 62 See Ministry for the Environment (MfE). (17 June 2022). Role of central government in adapting to climate change. Retrieved 7 February 2023 from <https://environment.govt.nz/what-government-is-doing/areas-of-work/climate-change/adapting-to-climate-change/climate-change-adaption-central-government>
- 63 See Ministry for the Environment (MfE). (17 June 2022). Role of central government in adapting to climate change. Retrieved 7 February 2023 from <https://environment.govt.nz/what-government-is-doing/areas-of-work/climate-change/adapting-to-climate-change/climate-change-adaption-central-government>
- 64 See McGuinness Institute. (2023). *Working Paper 2022/07 – Analysis of Climate Change in Government Department Strategies as at 31 December 2021*. Retrieved 7 February 2023 from <https://www.mcguinnessinstitute.org/wp-content/uploads/2023/02/20230201-Graph-change-2022-07-GDS-Climate.pdf>
- 65 All 221 government department strategy (GDS) documents were searched for the term ‘climate’. Of these only 81 GDSs contained the term ‘climate’, and of those 8 used the term differently (e.g. financial climate). The 73 remaining were then assessed for whether the term was used explicitly or implicitly.
- Explicit meant a detailed mention of climate change with discussion of possible impacts on the department’s approach. There were 41 GDSs that explicitly mentioned climate change.
- Implicit meant a minimal mention of climate change with little discussion of impact on the department’s approach. There were 32 GDSs that implicitly mentioned climate change.
- See McGuinness Institute. (2023). *Working Paper 2022/07 – Analysis of Climate Change in Government Department Strategies as at 31 December 2021*, p. 6. Retrieved 7 February 2023 from <https://www.mcguinnessinstitute.org/wp-content/uploads/2023/02/20230201-Graph-change-2022-07-GDS-Climate.pdf>
- 66 See Climate Adapt. (n.d.). What is meant by uncertainty? Retrieved 7 February 2023 from https://climate-adapt.eea.europa.eu/en/knowledge/tools/uncertainty-guidance/topic1/index_html
- 67 A table containing all existing national scenarios can be found on the McGuinness Institute website: <https://www.mcguinnessinstitute.org/new-zealand-scenarios>
- 68 See European Financial Reporting Advisory Group. (January 2022). *[Draft] European Sustainability Reporting Guidelines 1 Double materiality conceptual guidelines for standard-setting*. Retrieved 16 February 2023 from <https://www.efrag.org/Assets/Download?assetUrl=/sites/webpublishing/SiteAssets/Appendix%202.6%20-%20WP%20on%20draft%20ESRG%201.pdf&AspxAutoDetectCookieSupport=1>
- 69 See Coughlan, T. (15 February 2023). Cyclone Gabrielle: James Shaw and Todd Muller revive climate change partnership to discuss \$50b flooding problem. *New Zealand Herald*. Retrieved 16 February 2023 from <https://www.nzherald.co.nz/nz/politics/cyclone-gabrielle-james-shaw-and-todd-muller-revive-climate-change-partnership-to-discuss-flood-retreat-bill/SIYN7ZY3UFCIPG2I53H3XIIMQM>
- 70 See Boston, J. (February 2023). *Funding Managed Retreat – Designing a Public Compensation Scheme for Private Property Losses: Policy Issues and Options*. Environmental Defence Society. Retrieved 17 February 2023 from <https://eds.org.nz/wp-content/uploads/2022/11/Jonathan-Boston-Funding-Managed-Retreat-Final.pdf>
- 71 See slides 11 and 12 for more detail on each option. McGuinness Institute. (October 2022). Water Services Entities Bill Oral Submission. Retrieved 22 February 2023 from <https://www.mcguinnessinstitute.org/publications/slideshows-and-presentations/>
- 72 See Rewiring Australia. (n.d.). Electrify Everything. Retrieved 22 February 2023 from <https://www.rewiringaustralia.org/>

- 73 Luxon, C. (31 March 2023). National Will Electrify NZ [press release]. National. Retrieved 5 April 2023 from https://www.national.org.nz/national_will_electrify_nz
- 74 Radio New Zealand. (14 December 2022). Air NZ partnering with aircraft makers to develop zero-emission demonstrator flights. Retrieved 22 February 2022 from <https://www.rnz.co.nz/news/business/480721/air-nz-partnering-with-aircraft-makers-to-develop-zero-emission-demonstrator-flights>
- 75 Simple Flying. (22 February 2020). Could Altitude Hold The Key To Reducing Aviation Emissions?. Retrieved 5 April 2023 from <https://simpleflying.com/altitude-cut-aviation-emissions/>
- 76 World Economic Forum & Reuters. (17 November 2021). 4 ways airlines are planning to become carbon neutral. Retrieved 5 April 2023 from <https://www.weforum.org/agenda/2021/11/airlines-industry-climate-neutral-travel/>
- 77 See Cabinet Office. (2017). *Cabinet Manual 2017*, p. 1. Retrieved 15 February 2023 from <https://dpmc.govt.nz/sites/default/files/2017-06/cabinet-manual-2017.pdf>
- 78 See McGuinness Institute. (2012). *Dr Apirana Mahuika – Why we need relationships rather than partnerships*. Retrieved 7 February 2023 from <https://www.youtube.com/watch?v=0nTJW7hXLmU>
- 79 See Hansard (Debates). (2014). Tūhoe Claims Settlement Bill, Te Urewera Bill — Third Readings. Retrieved 7 February 2023 from https://www.parliament.nz/en/pb/hansard-debates/rhr/document/50HansD_20140726_00000128/t%C5%ABhoe-claims-settlement-bill-te-urewera-bill-third-readings
- 80 See also McGuinness Institute. (2019). *Revisiting Tomorrow: Tāmami Kruger*. Retrieved 7 February 2023 from https://www.youtube.com/watch?v=z24Oef_JNZc&list=PLQZ75wSY3u65A6GsC3RryEAzEXzsw-2lo&index=5
- 81 See Statistics New Zealand. (28 May 2021). Population projected to become more ethnically diverse. Retrieved 20 February 2023 from <https://www.stats.govt.nz/news/population-projected-to-become-more-ethnically-diverse>
- 82 See, in particular, the Tax Working Group report *He Ara Waiora* and the Productivity Commission *Fair Chance for All Inquiry*, p. 2. Other interesting articles are listed below.
- See Tax Working Group. (20 September 2018). *He Ara Waiora / A Pathway Towards Wellbeing*. Retrieved 17 February 2023 from <https://taxworkinggroup.govt.nz/resources/he-ara-waiora-pathway-towards-wellbeing.html>
- See New Zealand Productivity Commission. (September 2022). *A fair chance for all: Breaking the cycle of persistent disadvantage interim report*, p. 2. Retrieved 17 February 2023 from <https://www.productivity.govt.nz/assets/InquiryDocs/EISM-Interim/Productivity-Commission-A-fair-chance-for-all-Interim-Report.pdf>
- See Mance, H. (13 February 2023). Mariana Mazzucato: ‘The McKinseys and the Deloitte have no expertise in the areas that they’re advising in’. *Financial Times*. Retrieved 17 February 2023 from <https://www.ft.com/content/fb1254dd-a011-44cc-bde9-a434e5a09fb4>
- See Roy, C. & Slim, G. (November 2022). Connecting Two Worlds: Enhancing knowledge sharing between academics and policymakers in Aotearoa New Zealand. *Policy Quarterly*, 18(4), pp. 65–73. Retrieved 16 February 2023 from <https://ojs.victoria.ac.nz/pq/article/view/8018/7126>
- See Salmond, A. (November 2022). Where Will the Bellbird Sing? Te Tiriti o Waitangi and ‘Race’. *Policy Quarterly*, 18(4), pp. 3–25. Retrieved 16 February 2023 from <https://ojs.victoria.ac.nz/pq/article/view/8019/7127>
- 83 See McGuinness Institute. (2010). *Report 8 – Effective Māori Representation in Parliament – Working towards a National Sustainable Development Strategy*, p. 1. Retrieved 10 February 2023 from <https://www.mcguinnessinstitute.org/publications/project-2058>
- 84 See Doyle, K. (5 February 2020). What will Aotearoa look like on Te Tiriti o Waitangi’s 200th anniversary? Radio New Zealand. Retrieved 22 February 2023 from <https://www.rnz.co.nz/news/te-manu-korihi/408901/what-will-aotearoa-look-like-on-te-tiriti-o-waitangi-s-200th-anniversary>

- 85 See Colford, C. (15 November 2016). Productivity for prosperity: ‘In the long run, it is almost everything’. *World Bank Blogs*. Retrieved 20 February 2023 from <https://blogs.worldbank.org/psd/productivity-prosperity-long-run-it-almost-everything>
- 86 See New Zealand Productivity Commission. (27 May 2021). Productivity by the numbers. Retrieved 20 February 2023 from <https://www.productivity.govt.nz/news/productivity-by-the-numbers>
- 87 See New Zealand Productivity Commission. (May 2021). *Productivity by the numbers*, p. 3. Retrieved 20 February 2023 from <https://www.productivity.govt.nz/assets/Documents/productivity-by-the-numbers/Productivity-by-the-numbers.pdf?vid=2>
- 88 See New Zealand Productivity Commission. (27 May 2021). Productivity by the numbers. Retrieved 20 February 2023 from <https://www.productivity.govt.nz/news/productivity-by-the-numbers>
- 89 Rajan, R. (25 February 2020). Thomas Piketty’s ‘Capital and Ideology’: scholarship without solutions. *Financial Times*. Retrieved 16 February 2023 from <https://www.ft.com/content/5a393b5a-4f23-11ea-95a0-43d18ec715f5>
- 90 See Coleman, A. (2018). Public Submission to the Tax Working Group. In *Tax Working Group Information Release: Release Document*. Retrieved 14 February 2023 from <https://taxworkinggroup.govt.nz/sites/default/files/2018-09/twg-bg-3996840-submissions-from-organisations-and-academics.pdf>
- 91 See Smith, C. (February 2018). TacklingPovertyNZ – the nature of poverty in New Zealand and ways to address it. *Policy Quarterly*, 14(1). Retrieved 13 February 2023 from <https://ojs.victoria.ac.nz/pg/issue/view/553>
- 92 See The New Zealand Curriculum Online. (3 September 2020). Financial capability. Retrieved 17 February 2023 from <https://nzcurriculum.tki.org.nz/Curriculum-resources/Financial-capability/Resources>
- 93 See McGuinness Institute. TalentNZ. Retrieved 13 February 2023 from <https://www.mcguinnessinstitute.org/projects/talent-nz>
- 94 See USA for UNHCR: the UN Refugee Agency. (n.d.). Refugee Statistics. Retrieved 4 April 2023 from <https://www.unrefugees.org/refugee-facts/statistics/>
- 95 See UNHCR: The UN Refugee Agency. (n.d.). Global Trends. Retrieved 4 April 2023 from <https://www.unhcr.org/globaltrends.html>
- 96 See Marlowe, J. (18 June 2021). New Zealand has one of the lowest numbers of refugees per capita in the world — there is room for many more. *The Conversation*. Retrieved 20 February 2023 from <https://theconversation.com/new-zealand-has-one-of-the-lowest-numbers-of-refugees-per-capita-in-the-world-there-is-room-for-many-more-162663>
- 97 See New Zealand Parliament. (22 August 2014). Voting age reduced to 18 years in 1974. Retrieved 13 February 2023 from <https://www.parliament.nz/en/document/00NZPHomeNews201408221>
- 98 See New Zealand Parliament. (22 August 2014). Voting age reduced to 18 years in 1974. Retrieved 13 February 2023 from <https://www.parliament.nz/en/document/00NZPHomeNews201408221>
- 99 See Radio New Zealand. (21 November 2022). Voting age 16 law to be drafted requiring three quarters of MPs to pass – Ardern. Retrieved 13 February 2023 from <https://www.rnz.co.nz/news/political/479195/voting-age-16-law-to-be-drafted-requiring-three-quarters-of-mps-to-pass-ardern>
- 100 See Radio New Zealand. (21 November 2022). Voting age 16 law to be drafted requiring three quarters of MPs to pass – Ardern. Retrieved 13 February 2023 from <https://www.rnz.co.nz/news/political/479195/voting-age-16-law-to-be-drafted-requiring-three-quarters-of-mps-to-pass-ardern>
- 101 See Palmer, R. (22 November 2022). Labour considers voting age change for council elections. Radio New Zealand. Retrieved 13 February 2023 from <https://www.rnz.co.nz/news/political/479271/labour-considers-voting-age-change-for-council-elections>
- 102 See Palmer, R. (22 November 2022). Labour considers voting age change for council elections. Radio New Zealand. Retrieved 13 February 2023 from <https://www.rnz.co.nz/news/political/479271/labour-considers-voting-age-change-for-council-elections>

- 103 See Electoral Commission. (May 2021). *Report of the Electoral Commission on the 2020 General Election and referendums*, p. 6. Retrieved 21 February 2023 from <https://elections.nz/assets/2020-general-election/Report-of-the-Electoral-Commission-on-the-2020-General-Election-and-referendums.pdf>
- 104 See Electoral Commission. (n.d.). 2020 General Election & referendums: Voter turnout statistics for the 2020 General Election. Retrieved 21 February 2023 from <https://elections.nz/democracy-in-nz/historical-events/2020-general-election-and-referendums/voter-turnout-statistics-for-the-2020-general-election>
- See Electoral Commission. (n.d.). 2017 General Election: Voter turnout statistics for the 2017 General Election. Retrieved 21 February 2023 from <https://elections.nz/democracy-in-nz/historical-events/2017-general-election/voter-turnout-statistics-for-the-2017-general-election>
- 105 See Eichhorn, J. & Huebner, C. (25 January 2023). Scottish elections: young people more likely to vote if they started at 16 – new study. *The Conversation*. Retrieved 13 February 2023 from <https://theconversation.com/scottish-elections-young-people-more-likely-to-vote-if-they-started-at-16-new-study-197823>
- 106 See Eichhorn, J. & Huebner, C. (25 January 2023). Scottish elections: young people more likely to vote if they started at 16 – new study. *The Conversation*, pp.573, 566–567, 569. Retrieved 13 February 2023 from <https://theconversation.com/scottish-elections-young-people-more-likely-to-vote-if-they-started-at-16-new-study-197823>
- 107 ‘The Commission believes that a strong case can be made for lowering the voting age to 16.’ See Royal Commission on the Electoral System. (December 1986). *Report of the Royal Commission on the Electoral System: Towards a better democracy*, p. 235. Retrieved 13 February 2023 from <https://elections.nz/assets/Report-of-the-Royal-Commission-on-the-Electoral-System-1986/Chapter-9-administration-of-the-system.pdf>
- 108 ‘If children are to be included as part of the community, the only justification for excluding them from voting must be lack of competence.’ See Royal Commission on the Electoral System. (December 1986). *Report of the Royal Commission on the Electoral System: Towards a better democracy*, p. 234. Retrieved 13 February 2023 from <https://elections.nz/assets/Report-of-the-Royal-Commission-on-the-Electoral-System-1986/Chapter-9-administration-of-the-system.pdf>
- 109 ‘In the case of adolescents, however, the claims both of political incompetence and general lack of responsibility are less compelling ... By the age of 15 or 16, most young people have acquired a view of the social and political world that is not very different from the perceptions and understandings of mature adults.’ See Royal Commission on the Electoral System. (December 1986). *Report of the Royal Commission on the Electoral System: Towards a better democracy*, pp. 234–235. Retrieved 13 February 2023 from <https://elections.nz/assets/Report-of-the-Royal-Commission-on-the-Electoral-System-1986/Chapter-9-administration-of-the-system.pdf>
- 110 ‘Interestingly, while for some participants it was the act of voting itself that made them realise their newly gained power, others experienced a similar boost in confidence regardless of attaining the right to vote. For them, the lowering of the voting age countered often repeated claims about youth political disengagements and young people’s lack of maturity and interest in politics.’ See Huebner, C. (July 2021). How Young People in Scotland Experience the Right to Vote at 16: Evidence on ‘Votes-at-16’ in Scotland from Qualitative Work with Young People. *Parliamentary Affairs*, 74(3), pp. 563–580. Retrieved 13 February 2023 from <https://doi.org/10.1093/pa/gsab017>
- See also Royal Commission on the Electoral System. (December 1986). *Report of the Royal Commission on the Electoral System: Towards a better democracy*, pp. 231–293. Retrieved 13 February 2023 from <https://elections.nz/assets/Report-of-the-Royal-Commission-on-the-Electoral-System-1986/Chapter-9-administration-of-the-system.pdf>
- 111 See Seleman, C. (2018). Around the World: Children's Suffrage: Giving 16 Year Olds the Right to Vote. *Children's Legal Rights Journal*, 38(2), 174. Retrieved 13 February 2023 from <https://lawcommons.luc.edu/cgi/viewcontent.cgi?article=1170&context=clrj>

- 112 See Seleman, C. (2018). Around the World: Children's Suffrage: Giving 16 Year Olds the Right to Vote. *Children's Legal Rights Journal*, 38(2), 174. Retrieved 13 February 2023 from <https://lawecommons.luc.edu/cgi/viewcontent.cgi?article=1170&context=clrj>
- See also Huebner, C. (July 2021). How Young People in Scotland Experience the Right to Vote at 16: Evidence on 'Votes-at-16' in Scotland from Qualitative Work with Young People. *Parliamentary Affairs*, 74(3), pp. 563–580. Retrieved 13 February 2023 from <https://doi.org/10.1093/pa/gsab017>
- 113 See Department of Conservation. (August 2020). *Biodiversity in Aotearoa: An overview of state, trends and pressures 2020*. Retrieved 22 September 2022 from <https://www.doc.govt.nz/globalassets/documents/conservation/biodiversity/anzbs-2020-biodiversity-report.pdf>
- 114 See Convention on Biological Diversity. (19 December 2022). COP15: nations adopt four goals, 23 targets for 2030 in landmark UN biodiversity agreement [press release]. Retrieved 13 February 2023 from <https://www.cbd.int/article/cop15-cbd-press-release-final-19dec2022>
- 115 See Department of Conservation. (August 2020). *Te Mana o Te Taiao – Aotearoa New Zealand Biodiversity Strategy 2020*. Retrieved 22 September 2022 from <https://www.doc.govt.nz/globalassets/documents/conservation/biodiversity/anzbs-2020.pdf>
- 116 See Ministry for the Environment. (30 April 2021). Measuring forest carbon. Retrieved 7 December 2022 from <https://environment.govt.nz/facts-and-science/climate-change/measuring-greenhouse-gas-emissions/measuring-forest-carbon>
- 117 See He Pou a Rangi – Climate Change Commission. (31 May 2021). *Ināia tonu nei: a low emissions future for Aotearoa*, p. 120. Retrieved 20 September 2022 from <https://ccc-production-media.s3.ap-southeast-2.amazonaws.com/public/Inaia-tonu-nei-a-low-emissions-future-for-Aotearoa/Inaia-tonu-nei-a-low-emissions-future-for-Aotearoa.pdf>
- 118 See Harrisberg, K. (11 April 2022). What are 'sponge cities' and how can they prevent floods? Climate Champions. Retrieved 25 January 2023 from <https://climatechampions.unfccc.int/what-are-sponge-cities-and-how-can-they-prevent-floods>
- 119 Ministry of Justice. (n.d.). Constitutional. Retrieved 3 April 2023 from <https://www.justice.govt.nz/justice-sector-policy/regulatory-stewardship/regulatory-systems/constitutional/>
- 120 National Assembly of Bhutan. (2008). *The Constitution of The Kingdom of Bhutan*, p. 12. Retrieved 3 April 2023 from <https://www.nab.gov.bt/assets/templates/images/constitution-of-bhutan-2008.pdf>
- 121 See Greater Wellington Regional Council. (1 June 2020). *Key Native Ecosystem Operational Plan for Queen Elizabeth Park 2017-2020*. Retrieved 27 January 2022 from <https://www.gw.govt.nz/assets/Documents/2020/06/Key-Native-Ecosystem-Operational-Plan-for-Queen-Elizabeth-Park-2017-2020.pdf>
- 122 See Ministry of Business, Innovation and Employment. (5 December 2022). International Visitor Conservation and Tourism Levy. Retrieved 17 December 2023 from <https://www.mbie.govt.nz/immigration-and-tourism/tourism/tourism-funding/international-visitor-conservation-and-tourism-levy/>
- 123 See World Bank Data. International Tourism, Number of Arrivals – New Zealand. Retrieved 12 February 2023 from <https://data.worldbank.org/indicator/ST.INT.ARVL?locations=NZ>
- 124 See United Nations. (n.d.). Convention on Biological Diversity, key international instrument for sustainable development. Retrieved 27 January 2022 from <https://www.un.org/en/observances/biological-diversity-day/convention>
- 125 See Stuff. (26 June 2021). Government's vision to protect New Zealand's marine ecosystems and fisheries. Retrieved 17 February 2023 from <https://www.stuff.co.nz/national/300342901/governments-vision-to-protect-new-zealands-marine-ecosystems-and-fisheries>
- 126 Officials had found 'significant gaps' and laid out four areas where more work was needed. These included the development of a comprehensive marine spatial planning framework, consideration of impacts on the marine environment which originate on land, better integrating regulatory tools and legislation and using data more effectively in decision-making. Specifically, officials recommended developing a detailed business case for an integrated marine database, a national implementation

- framework for regional marine spatial planning and following the success of Sea Change with more integrated management plans in ‘priority regions’. Parker said he wanted to finish the original work programme before progressing these new initiatives. See Daalder, M. (8 January 2023). Ocean Minister’s progress after two years in job. *Newsroom*. Retrieved 12 February 2023 from <https://www.newsroom.co.nz/sustainable-future/ocean-ministers-progress-after-two-years-in-job>
- 127 See also Cabinet Office. (n.d.). *Oceans and Fisheries portfolio – work programme report-back* [Cabinet Paper]. Retrieved 12 February 2023 from <https://www.mpi.govt.nz/dmsdocument/54325-Oceans-and-Fisheries-portfolio-work-programme-report-back-Cabinet-paper>
- 128 See Daalder, M. (8 January 2023). Ocean Minister’s progress after two years in job. *Newsroom*. Retrieved 12 February 2023 from <https://www.newsroom.co.nz/sustainable-future/ocean-ministers-progress-after-two-years-in-job>
- 129 See Convention on Biological Diversity. (19 December 2022). COP15: nations adopt four goals, 23 targets for 2030 in landmark UN biodiversity agreement [press release]. Retrieved 13 February 2023 from <https://www.cbd.int/article/cop15-cbd-press-release-final-19dec2022>
- 130 This builds on an earlier Project 2058 report: McGuinness Institute. (May 2015). *Report 10 – One Ocean – Principles for the stewardship of a healthy and productive ocean*, Section 4. Retrieved 13 February 2023 from <https://www.mcguinnessinstitute.org/publications/project-2058/>
- 131 The proposed Rangitāhua/Kermadec Ocean Sanctuary was introduced by the 2016 Kermadec Ocean Sanctuary Bill. The bill awaits its second reading. See Ministry for the Environment. (4 April 2021). Kermadec Ocean Sanctuary Bill. Retrieved 13 February 2023 from <https://environment.govt.nz/acts-and-regulations/acts/kermadec-ocean-sanctuary-bill>
- 132 See Department of Conservation. (n.d.). DOC maps: Discover the outdoors. Retrieved 21 March 2023 from <https://www.doc.govt.nz/map/index.html?layers=Public%20conservation%20areas>
- 133 There are a range of marine protection tools similar to Type 1 and 2 Marine Protected Areas, but they do not protect sufficient biodiversity to meet the protection standard. They include benthic protection areas, seamount area closures, marine mammal sanctuaries and customary management areas. See Department of Conservation. Other marine protection tools. Retrieved 13 February 2023 from <https://www.doc.govt.nz/nature/habitats/marine/other-marine-protection>
- 134 See South-East Marine Protection Forum. (n.d.). Recommendations. Retrieved 22 February 2023 from <https://otagomarine.wordpress.com/recommendations/>
- 135 See Greenpeace (n.d.). Ban Bottom Trawling on Seamounts. Retrieved 21 January 2023 from <https://www.greenpeace.org/aotearoa/act/ban-bottom-trawling-on-seamounts>
- 136 There are a number of groups working in this space. See for example Protect Our Gulf. (n.d.). Retrieved 13 February 2023 from <http://www.pog.org.nz>
- 137 See Wilson, K.-J. (17 February 2015). Seabirds – overview. *Te Ara – the Encyclopedia of New Zealand*. Retrieved 22 February 2023 from <https://teara.govt.nz/en/seabirds-overview>
- 138 See Department of Conservation. (n.d.). Other marine protection tools. Retrieved 13 February 2023 from <https://www.doc.govt.nz/nature/habitats/marine/other-marine-protection>
- 139 There are a number of groups working in this space. See for example Guardians of the Sounds. (2022). Retrieved 13 February 2023 from <http://www.guardiansofthesounds.co.nz>
- 140 See, for example, the work being undertaken by the global NGO Plastic Oceans. Retrieved 13 February 2023 from <https://plasticoceans.org>
- 141 See, for example, the work being undertaken in Queensland, Australia: Queensland Government. (n.d.). Reducing fertiliser run-off. Retrieved 13 February 2023 from <https://www.qld.gov.au/environment/coasts-waterways/reef/preserve-the-wonder/fertiliser-runoff>
- 142 See, for example, the work being undertaken by the global NGO Our Shared Seas. (18 August 2020). Sewage Pollution Primer. Retrieved 13 February 2023 from <https://oursharedseas.com/sewage-pollution-primer>

- 143 See NIWA. (n.d.). Sediment and forestry. Retrieved 13 February 2023 from https://niwa.co.nz/our-science/freshwater/tools/kaitiaki_tools/land-use/forestry/impacts/sediment-and-forestry
- 144 'Blue carbon is the carbon stored in coastal and marine ecosystems.' Marine ecosystems sequester and store large quantities of blue carbon in plants and sediment. See The Blue Carbon Initiative (n.d.). Mitigating climate change through coastal ecosystem management. Retrieved 21 January 2023 from <https://www.thebluecarboninitiative.org>
- 145 See Sutherland, R. & Alegret, L. (14 February 2022). In a warmer future, ocean carbon sinks could help stabilise our planet. Greenpeace. Retrieved 13 February 2023 from <https://www.greenpeace.org/aotearoa/story/in-a-warmer-future-ocean-carbon-sinks-could-help-stabilise-our-planet>
- 146 See Sustainable Seas National Science Challenge. (2023). Seaweed Sector Framework. Retrieved 21 February 2023 from <https://www.sustainableseaschallenge.co.nz/tools-and-resources/seaweed-sector-framework>
- 147 See Ministry for Primary Industries. (May 2013). *Animal welfare matters: New Zealand Animal Welfare Strategy*. Retrieved 17 February 2023 from <https://www.mpi.govt.nz/dmsdocument/3963-Animal-Welfare-Matters-New-Zealand-Animal-Welfare-Strategy>
- 148 Agreed March 2022. See Morunga, A. M. (3 March 2022). A win for people power as global plastics treaty mandate adopted at UN. Greenpeace. Retrieved 13 February 2023 from <https://www.greenpeace.org/aotearoa/press-release/a-win-for-people-power-as-global-plastics-treaty-mandate-adopted-at-un>
- 149 See Greenpeace. (n.d.). Petition – Protect The Oceans. Retrieved 13 February 2023 from <https://petition.act.greenpeace.org.nz/ocean-sanctuary>
- 150 See Greenpeace. (n.d.). Petition – Stop deep sea mining in its tracks. Support a global ban now. Retrieved 13 February 2023 from <https://petition.act.greenpeace.org.nz/oceans-stop-deep-sea-mining>
- 151 'New Zealand has sovereign rights over a vast area of ocean, along with the fishery, mineral and petroleum resources that may exist in that area. The definition of the limits of these waters is a complex task that is undertaken by LINZ in conjunction with the Ministry of Foreign Affairs.' See Land Information New Zealand. Maritime Boundaries. Retrieved 13 February 2023 from <https://www.linz.govt.nz/guidance/marine-information/maritime-boundaries>
- 152 The strategy 'includes all domains – land, fresh water, estuaries and wetlands, and the marine environment from the coastline to the outer edges of the Exclusive Economic Zone and the extended continental shelf. It also includes all types of tenure, including public lands, private land and Māori-owned land, and covers all indigenous and non-indigenous species, as well as migratory species that swim or fly between Aotearoa New Zealand and international waters or other countries.' See Department of Conservation. (August 2020). *Te Mana o Te Taiao – Aotearoa New Zealand Biodiversity Strategy 2020*, p. 13. Retrieved 22 September 2022 from <https://www.doc.govt.nz/globalassets/documents/conservation/biodiversity/anzbs-2020.pdf>
- 153 The GDS Index ranks each of the GDSs in terms of essential information. The Index does not rate the strategy as such; it rates the strategy document's provision of essential information and clarity of communication, so readers can then assess the strategic approach for themselves. See McGuinness Institute. (2022). *List of all GDSs in operation as at 31 December 2021*. See <https://www.mcguinnessinstitute.org/2021-gds-index-tables>. Learn more about the Index here: <https://www.mcguinnessinstitute.org/gds-index-2>
- 154 See concerns raised over the health of snapper and rock lobsters in the media. See Rawlings, C. (28 December 2022). Anglers catch 'milky flesh' snapper in Hauraki Gulf and Northland areas. *Newshub*. Retrieved 13 February 2023 from <https://www.newshub.co.nz/home/new-zealand/2022/12/anglers-catch-milky-flesh-snapper-in-hauraki-gulf-and-northland-areas.html>
- 155 See Greenwave. (n.d.). The Kelp Climate Fund. Retrieved 21 February 2023 from <https://www.greenwave.org/kelp-climate-fund>

- 156 See Mazzucato, M. (27 January 2023). For the Common Good. *Project Syndicate*. Retrieved 13 February 2023 from <https://www.project-syndicate.org/commentary/common-good-governance-key-elements-by-mariana-mazzucato-2023-01?barrier=accesspaylog>
- 157 See Mance, H. (13 February 2023). Mariana Mazzucato: 'The McKinseys and the Deloittes have no expertise in the areas that they're advising in'. *Financial Times*. Retrieved 17 February 2023 from <https://on.ft.com/3IIUGUb>
- 158 See World Commission for Economic Development. (WCED). (1987). *Our Common Future: The Brundtland Report*. Oslo, Norway: WCED, p. 37.
- 159 See Oxley, L. & Qasim, M. (2020). On Sustainable Development. In E. Berman & G. Karacaoglu (eds), *Public Policy and Governance Frontiers in New Zealand*. UK: Emerald.
- 160 See Parliamentary Commissioner for the Environment. (14 December 2021). *Wellbeing budgets and the environment: A promised land?* Retrieved 13 February 2023 from <https://pce.parliament.nz/publications/wellbeing-budgets-and-the-environment>
- 161 See Centre for Strategic Futures (CSF), Singapore. Our Approach. Retrieved 13 February 2023 from <https://www.csf.gov.sg/our-work/our-approach/>
- 162 Centre for Strategic Futures. (15 March 2023). Who We Are. Retrieved 5 April 2023 from <https://www.csf.gov.sg/who-we-are/>
- 163 See *Otago Daily Times*. (2 March 2013). What are the risks?. Retrieved 17 February 2022 from <https://www.odt.co.nz/lifestyle/magazine/what-are-risks>.
See also Munro, B. (9 October 2015). Standing his ground. *Otago Daily Times*. Retrieved 17 February 2023 from <https://www.odt.co.nz/lifestyle/magazine/standing-his-ground>
- 164 See Bargh, M. & Tapsell, E. (August 2021). For a Tika Transition: strengthen rangatiratanga. *Policy Quarterly*, 17(3). Retrieved 13 February 2023 from <https://ojs.victoria.ac.nz/pq/article/view/7126>
- 165 See the Well-being of Future Generations (Wales) Act 2015. UK Legislation. Retrieved 16 February 2023 from <https://www.legislation.gov.uk/anaw/2015/2/contents/enacted>
- 166 Chrobak, U. (12 June 2022). The obscure calculation transforming climate policy. *Knowable Magazine*. Retrieved 5 April 2023 from <https://knowablemagazine.org/article/society/2022/the-obscure-calculation-transforming-climate-policy>
- 167 See Office of the Auditor-General. (2022). Report from Parliamentary Commissioner for the Environment reinforces need for effective public accountability. Retrieved 13 February 2023 from <https://www.oag.parliament.nz/blog/2022/pce-public-accountability>
- 168 See Boston, J. (2017). *Governing for the Future: Designing Democratic Institutions for a Better Tomorrow*, pp. 24–25, 239–241. Retrieved 13 February 2023 from <https://www.emerald.com/insight/publication/doi/10.1108/S2053-7697201725>
See also Boston, J., Bagnall, D. & Barry, A. (2019). *Foresight, Insight and Oversight: Enhancing long-term governance through better parliamentary scrutiny*. Institute for Governance and Policy Studies, Victoria University of Wellington. Retrieved 13 February 2023 from https://www.victoria.ac.nz/_data/assets/pdf_file/0011/1753571/Foresight-insight-and-oversight.pdf
- 169 UCL Institute for Innovation and Public Purpose. (9 December 2019). IIPP meets with new Scottish National Investment Bank to discuss green missions. Retrieved 13 February 2023 from <https://www.ucl.ac.uk/bartlett/public-purpose/news/2019/dec/iipp-meets-new-scottish-national-investment-bank-discuss-green-missions>
- 170 See Hall, D. (November 2022). *Adaptation finance: Risks and opportunities for Aotearoa New Zealand*. Concept paper prepared for the Ministry for the Environment. Auckland: Mōhio Research and AUT. Retrieved 13 February 2023 from <https://openrepository.aut.ac.nz/server/api/core/bitstreams/54b7da71-dc8d-4dea-9a64-d1665cd2dd99/content>
- 171 See Regional Economic Development & Investment Unit. (n.d.). The Provincial Growth Fund. Ministry of Business, Innovation and Employment. Retrieved 23 February 2023 from <https://www.growregions.govt.nz/established-funds/what-we-have-funded/the-provincial-growth-fund/>

- 172 See LGNZ. (n.d.). *Levelling Up The United Kingdom – The Whitepaper*. Retrieved 23 February 2023 from <https://www.lgnz.co.nz/assets/PDFs/Levelling-Up-Review.pdf>
- 173 See Reid, D. (May 2022). *The case for councils being community housing providers*. LGNZ. Retrieved 23 February 2023 from <https://www.lgnz.co.nz/assets/PDFs/The-case-for-councils-being-community-housing-providers.pdf>
- 174 See New Zealand Productivity Commission. (8 November 2022). Productivity Commission investigating NZ's economic resilience to supply chain disruptions. Retrieved 23 February 2023 from <https://www.productivity.govt.nz/news/productivity-commission-investigating-nzs-economic-resilience-to-supply-chain-disruptions/>
- 175 See Adapt Research. (5 February 2023). US takes action to avert human existential catastrophe: The Global Catastrophic Risk Management Act (2022). Retrieved 13 February 2023 from <https://adaptresearchwriting.com/2023/02/05/us-takes-action-to-avert-human-existential-catastrophe-the-global-catastrophic-risk-management-act-2022>
- See also Global Catastrophic Risk Management Act of 2022. Senate of the United States, 117th CONGRESS, 2d Session. Retrieved 13 February 2023 from <https://www.congress.gov/117/bills/hr7776/BILLS-117hr7776enr.pdf#page=1290>
- 176 See Australian Government: Department of Industry, Science and Resources. (n.d.). Office of Supply Chain Resilience. Retrieved 23 February 2023 from <https://www.industry.gov.au/trade/office-supply-chain-resilience>
- 177 See World Health Organization (WHO). (2023). Expert Committee on Selection and Use of Essential Medicines. Retrieved 23 February 2023 from <https://www.who.int/groups/expert-committee-on-selection-and-use-of-essential-medicines>
- 178 See Australian Government: Department of Foreign Affairs and Trade. (n.d.). For Australian exporters and importers – Boosting supply chain resilience. Retrieved 23 February 2023 from <https://www.dfat.gov.au/trade/for-australian-business/boosting-supply-chain-resilience>
- 179 See Gawande, A. (2011). *The Checklist Manifesto: How to get things right*. Croydon: CPI Group (UK) Ltd.
- 180 See Hill, D. (March 2022). *Designing Missions: Mission-oriented innovation in Sweden – A practice guide by Vinnova*. Stockholm, Sweden: Blomquist Communication.
- 181 If you would like to learn more about challenge-led approaches, please read Rowan Conway's discussion on pp. 8–9 in McGuinness Institute. (June 2021). *Discussion paper 2021/01 – Mission Aotearoa – mapping our future*. Retrieved 13 February 2023 from <https://www.mcguinnessinstitute.org/publications/discussion-papers>

Also see the five criteria for developing missions on p. 21.

'1. Be bold and inspirational with wide societal relevance: Missions should engage the public. They should make clear that through ambitious, bold action, solutions will be developed that will have an impact on people's daily lives.

'2. Set a clear direction – targeted, measurable and time-bound: Missions need to be very clearly framed. While enabling long-term investments, they need a specific target that can either be formulated in binary ways (as clearly as whether man has reached the Moon and returned back safely) or quantified (as clearly as whether a certain percentage reduction in carbon emissions against a baseline has been reached across manufacturing).

'3. Be ambitious but realistic: Mission objectives should be set in an ambitious manner (taking risks), centred on research and innovation activities across the entire innovation chain, including the feedback effects between basic and applied research.

'4. Encourage cross-disciplinary, cross-sectoral and cross-actor innovation: Missions should be framed in such a way as to spark activity across, and among, multiple scientific disciplines (including social sciences and humanities), across different industrial sectors (e.g. transport, nutrition, health, services), and by different types of actors (e.g. public, private, third sector, civil society organisations).

'5. Involve multiple, bottom-up solutions: Missions should not be achievable by a single development path, or by a single technology. They must be open to being addressed by different types of solutions.'

- 182 See Parliamentary Commissioner for the Environment. (18 October 2022). *Environmental reporting, research and investment: Do we know if we're making a difference?*, p. 41. Retrieved 16 February 2023 from <https://pce.parliament.nz/publications/environmental-reporting-research-and-investment>
- 183 See for example Manch, T. & McConnell, G. (1 June 2022). Take five: The key questions that are set to define the 2023 election. *Stuff*. Retrieved 13 February 2023 from <https://www.stuff.co.nz/national/politics/128751241/take-five-the-key-questions-that-are-set-to-define-the-2023-election>
- See also Edwards, B. (21 December 2022). Bryce Edwards' Political Roundup: Threats to politicians and co-governance could be big themes in 2023. *Evening Report.nz*. Retrieved 13 February from <https://eveningreport.nz/2022/12/21/bryce-edwards-political-roundup-threats-to-politicians-and-co-governance-could-be-big-themes-in-2023>
- 184 See Wilson, C. (22 February 2023). Mosquito-borne diseases become climate reality in warming Pacific. *Aljazeera*. Retrieved 23 February 2023 from <https://www.aljazeera.com/news/2023/2/22/rise-in-mosquito-borne-diseases-a-climate-reality-in-the-pacific>
- 185 Note: The World Economic Forum *Global Risks Report 2019* does mention the spread of infectious diseases. See World Economic Forum. (2019). *The Global Risks Report 2019: 14th Edition*. Retrieved 13 February 2023 from https://www3.weforum.org/docs/WEF_Global_Risks_Report_2019.pdf
- 186 On 27 April 2018, Bill Gates said he believed 'the world needs to prepare for pandemics in the same serious way it prepares for war'. See Sciponi, J. (27 January 2020). Bill Gates in 2018: The world needs to prepare for pandemics just like war. *Make it*. Retrieved 13 February 2023 from <https://www.cnbc.com/2020/01/27/bill-gates-in-2018-world-needs-to-prepare-for-pandemics-just-like-war.html>
- 187 The broader categories are those proposed by Jeff Desjardins: see Desjardins, J. (2022). *Signals: The 27 Trends Defining the Future of the Global Economy*. John Wiley & Sons.
- 188 See Fergnani, A. (27 April 2021). Wild Cards: What They Are and How to Use Them in Futures & Foresight. *Medium*. Retrieved 13 February 2023 from <https://medium.com/predict/wild-cards-what-they-are-and-how-to-use-them-in-futures-foresight-64d4755cd35b>
- 189 See Markley, O. (2011). A new methodology for anticipating STEEP surprises. *Technological Forecasting & Social Change*, 78. Retrieved 13 February 2023 from https://www.imaginalvisioning.com/wp-content/uploads/2010/08/Anticipating_STEEP_Surprises-TFSC1.pdf
- 190 See Alpine Fault Magnitude 8 (AF8). (n.d.). What is AF8? Retrieved 21 February 2023 from <https://af8.org.nz/what-is-af8>
- 191 *New Zealand Herald*. (30 March 2023). The Last of Us: Man catches fungus from plant in echoes of hit series. Retrieved 3 April 2023 from <https://www.nzherald.co.nz/world/the-last-of-us-man-catches-fungus-from-plant-in-echoes-of-hit-series/HU24JJ2YJFERPOLV4GAG27JA6M/>
- 192 See McFall-Johnsen, M. (30 January 2023). A fungus pandemic is unlikely, but not impossible. There's real science behind the mushroom zombies in HBO's new series 'The Last of Us.' *Insider*. Retrieved 13 February 2023 from <https://www.businessinsider.com/how-real-is-the-last-of-us-sciencebehind-fungus-pandemic-2023-1>
- Note: This article has been updated since we cited it.
- 193 See Marcus, D. (30 January 2021). The Difference Between Viruses, Bacteria and Fungi. *Cedars Sinai*. Retrieved 13 February 2023 from <https://www.marinahospital.com/blog/difference-between-viruses-bacteria-fungi>
- 194 Salazar, C. B., et al. (May–June 2022). Future pandemics might be caused by bacteria and not viruses: Recent advances in medical preventive practice. *International Journal of Health Sciences*, 16(3). National Library of Medicine. Retrieved 21 February 2023 from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9092534/>

- 195 'The Taupō Eruption was about 1,800 years ago and was the most violent eruption in the world in the last 5,000 years. It was a complex series of events. The first phases of the eruption produced a series of five pumice and ash fall deposits over a wide area of the central North Island, especially east of Taupō and beyond Napier into Hawke Bay. The eruption culminated with a large and very energetic pyroclastic flow that devastated an area of about 20,000 km² and filled all the major river valleys of the central North Island with pumice and ash.' See GNS Science. (n.d.). New Zealand's volcanoes. Retrieved 13 February 2023 from <https://www.gns.cri.nz/our-science/natural-hazards-and-risks/volcanoes/new-zealands-volcanoes>
- 196 See McGuinness Institute. (December 2022). *Discussion Paper 2022/03 – Nuclear War: Are we prepared?* Retrieved 13 February 2023 from <https://www.mcguinnessinstitute.org/publications/discussion-papers>
- 197 This infographic illustrates the number of different types of governance boundaries existing in New Zealand in 2016. This raises the question of whether standardising boundaries would help solve wicked problems such as climate change resilience and poverty. See McGuinness Institute. (November 2016). *Lines within New Zealand*. Retrieved 17 February 2023 from <https://www.mcguinnessinstitute.org/publications/infographics>

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