

Jonathan Boston

Anticipatory Governance how well is New Zealand safeguarding the future?

The future whispers while the present shouts.
– Al Gore

The attributes of anticipatory governance

Good governance has many attributes. Among these are anticipating tomorrow's problems, protecting the long-term public interest, and endeavouring to 'future-proof' the state (Boston et al., 2014). Sound *anticipatory* governance, in other words, is a critical ingredient. It is fundamental to advancing better government. But what exactly does it mean? Here are some suggestions.

Anticipatory governance is forward-looking (Fuerth with Faber, 2012, 2013). It takes the long view, regularly scanning the horizon for warning signals, as well as new, but often unexpected, opportunities. It assesses the long-term consequences of today's decisions and events, seeking wherever possible to minimise future harms. It considers risks – especially systemic risks – over extended timeframes and develops the capability and tools for rigorous risk management. It posits a range of scenarios and conducts regular 'stress tests' to ascertain the robustness of current institutional, policy and regulatory

Jonathan Boston is Professor of Public Policy in the School of Government at Victoria University of Wellington.

settings. It recognises the importance of resilience and the interconnected nature of its various dimensions (i.e. economic, social, infrastructural, institutional, environmental and cultural). It does not yearn for false certainties. Instead, it embraces the need, given a dynamic and unpredictable world, for anticipatory planning and adaptive management. It recognises that the past may provide little guidance to the future. After all, long-standing trends may cease and gradual adjustments may be superseded by non-linear changes: disruptive technologies, natural disasters, systemic financial failures or abrupt climatic shifts may fundamentally alter a nation's trajectory.

For such reasons, anticipatory governance is proactive. It values vigilance, preparedness, precaution and wise stewardship. As a general rule, it favours prevention over cure. It commends good evidence, critical evaluation and continuous improvement. It celebrates creativity, curiosity, innovation and imaginative reflection. It endorses a holistic approach to assessing performance: it focuses not only on fiscal deficits, but also on social, ecological and democratic deficits. Equally, it acknowledges the threat posed by deficits in adaptive capacity (Lawrence, 2016), all the more so in an era of remarkable technological advances, unprecedented environmental changes and multiple hazards.

In protecting future interests, anticipatory governance seeks robust, yet flexible, democratic institutions and processes. In so doing, it is alert to the insights of behavioural economics and social psychology, especially the influence of cognitive biases on decision-making (Kahnemann, 2011; Thaler and Sunstein, 2008). Likewise, it recognises the dangers of path dependence, vested interests and political myopia. For such reasons, it chooses institutional mechanisms, analytical tools, policy frameworks and 'commitment devices'¹ which bring the long term into short-term focus and ensure that tomorrow's interests are actively considered – and properly represented – in today's decisions. The goal, in short, is to embed the future in the present, thereby ameliorating the presentist bias

that often afflicts democratic processes (Healy and Malhorta, 2009; Heller, 2003; Jacobs, 2011, 2016; MacKenzie, 2013; Thompson, 2005, 2010).

Of course, the attributes of anticipatory governance enunciated above are ambitious and demanding. They serve as an ideal to which governments should aspire. In practice, for understandable reasons, most fall short. Yet, against such an ideal, how well does New Zealand perform? What is the quality of our anticipatory governance? What strengths and weaknesses are apparent? How well positioned is New Zealand to meet the challenges of the 21st century? To what extent are the country's governance arrangements and policy frameworks likely to protect the long-term public interest – both the interests of our 'future selves' and those of future generations?

This article ponders these questions. First, it highlights briefly the wide range of risks, both global and local, that contemporary governments must confront. One of these is endogenous: it is the risk to good governance from within – namely the failure of policymakers to exercise proper foresight. Second, it outlines various criteria for assessing the quality of anticipatory governance. Third, on the basis of these criteria it briefly evaluates the quality of New Zealand's policymaking institutions and frameworks. Finally, it suggests a number of reforms to enhance good anticipatory governance.

Several caveats deserve mention. The topics under discussion here are large and complex. They cannot be adequately addressed in a short article. Accordingly, the following analysis is partial and incomplete: it is an aperitif, not a full-course meal. Further, while this article comments on governance arrangements in New Zealand at both the central and subnational levels, the primary focus is on central government. In part this reflects the limitations of space. But it also recognises that New Zealand is a highly centralised unitary state, with the central government having responsibility for most of the important areas of public policy, such as health care, education, social services, taxation and transfer payments, including the regulation of

private sector activities that are vital to risk management (e.g. the provision of telecommunications infrastructure).² Finally, in an interdependent world with numerous supranational challenges – including many global collective action problems – that require international cooperation for effective solutions, nation states have only a limited capacity to navigate their own course, let alone fully protect all their future interests.

Facing an uncertain future

In considering the quality of anticipatory governance it is imperative to recognise that the future is uncertain. We cannot know for sure what will happen, even tomorrow. Major, unexpected and hard-to-predict events – or what are variously called 'black swans' or 'wild cards' – are inevitable (Smil, 2006; Taleb, 2007). And the further we probe into the future, the deeper the level of uncertainty we encounter. The quest for sound anticipatory governance, therefore, must start on the basis of both realism and humility about what we can reasonably foresee or predict. As Donald Rumsfeld, the former US secretary of defence, famously put it in 2002: 'there are known unknowns; that is to say we know there are some things we do not know. But there are also unknown unknowns – the ones we don't know we don't know'.

Despite such 'unknown unknowns', many of the risks that governments face, both now and in the more distant future, can be readily identified. Of course, the number of such risks is very large, and their likelihood and potential impacts are highly variable. To assist with the task of assessing the nature and seriousness of such risks, many international organisations, think tanks and businesses prepare regular, detailed risk analyses. One such example is the World Economic Forum, which publishes an annual report on global risks. This is based partly on an international survey of leaders from business, government, academia, civil society organisations and international organisations. Table 1 summarises 28 types of global risks, grouped into five categories: economic, environmental, geopolitical, social and technological. The risks listed here represent those which

Table 1: Global risks* as assessed by the World Economic Forum in 2015

General category	Type of risk	Description
1 Economic	1 Asset bubble in a major economy	Unsustainably overpriced assets, such as commodities, housing, shares, etc. in a major economy or region
	2 Deflation in a major economy	Prolonged ultra-low inflation or deflation in a major economy or region
	3 Energy price shock to the global economy	Sharp and/or sustained energy price increases that place further economic pressures on highly energy-dependent industries and consumers
	4 Failure of a major financial mechanism or institution	Collapse of a financial institution and/or inefficient functioning of a financial system with implications throughout the global economy
	5 Failure/shortfall of critical infrastructure	Failure to adequately invest in, upgrade and secure infrastructure networks leads to a breakdown with system-wide implications
	6 Fiscal crisis in key economies	Excessive debt burdens generate sovereign debt crisis and/or liquidity crises
	7 High structural unemployment or underemployment	A sustained high level of unemployment or underutilisation of the productive capacity of the employed population
	8 Unmanageable inflation	Unmanageable increase in the general price level of goods and services in key economies
2 Environmental	1 Extreme weather events (e.g. floods, storms, etc.)	Major property, infrastructure and environmental damage as well as human loss caused by extreme weather events
	2 Failure of climate change adaptation	Governments and businesses fail to enforce or enact effective measures to protect populations and to help businesses affected by climate change to adapt
	3 Major biodiversity loss and ecosystem collapse (land or ocean)	Irreversible consequences for the environment resulting in severely depleted resources for humankind as well as industries such as fishing, forestry, pharmaceuticals
	4 Major natural catastrophes	Major property, infrastructure and environmental damage as well as human loss caused by geophysical disasters such as earthquakes, volcanic activity, landslides, tsunamis or geomagnetic storms
	5 Man-made environmental catastrophes (e.g. oil spill, radioactive contamination)	Failure to prevent major man-made catastrophes causing harm to lives, human health, infrastructure, property, economic activity and the environment
3 Geopolitical	1 Failure of national governance	Inability to efficiently govern a nation of geopolitical importance due to weak rule of law, corruption, illicit trade, organised crime, impunity or political deadlock
	2 Interstate conflict with regional consequences	A bilateral or multilateral dispute between states escalates into economic (e.g. trade/currency wars, resource nationalisation), military, cyber, societal or other conflict
	3 Large-scale terrorist attacks	Individuals or non-state groups with political or religious goals successfully inflict large-scale human or material damage
	4 State collapse or crisis (e.g. civil conflict, military coup, failed states, etc.)	State collapse of geopolitical importance due to internal violence, regional or global instability and military coup, civil conflict, failed states, etc.
	5 Weapons of mass destruction	Nuclear, chemical, biological and radiological technologies and materials are deployed, creating international crises and potential for significant destruction
4 Societal	1 Failure of urban planning	Poorly planned cities, urban sprawl and associated infrastructure create social, environmental and health challenges
	2 Food crises	Access to appropriate quantities and quality of food and nutrition becomes inadequate, unaffordable or unreliable on a major scale
	3 Large-scale involuntary migration	Large-scale involuntary migration due to conflict, disasters, or environmental or economic reasons
	4 Profound social instability	Major social movements or protests (e.g. street riots, social unrest, etc.) disrupt political and social stability, negatively affecting populations and economic activity
	5 Rapid and massive spread of infectious diseases	Bacteria, viruses, parasites or fungi cause uncontrolled spread of infectious diseases (e.g. due to resistance to antibiotics, antivirals and other treatments), leading to widespread fatalities and economic disruption
	6 Water crises	A significant decline in the available quality and quantity of fresh water, resulting in harmful effects on human health and/or economic activity
5 Technological	1 Breakdown of critical information infrastructure and networks	Systemic failures of critical information infrastructure (e.g. internet, satellites, etc.) and networks negatively impact on industrial production, public services and communications
	2 Large-scale cyber attacks	State-sponsored, state-affiliated, criminal or terrorist large-scale cyber attacks cause an infrastructure breakdown and/or loss of trust in the internet
	3 Massive incident of data fraud/theft	Criminal or state-sponsored wrongful exploitation of private or official data takes place on an unprecedented scale
	4 Massive and widespread misuse of technologies	Massive and widespread misuse of technologies, such as 3D printing, artificial intelligence, geo-engineering and synthetic biology, causing human, environmental and economic damage

Source: World Economic Forum (2015), pp.53-54

*A global risk is defined as an uncertain event or condition that, if it occurs, can cause significant negative impact for several countries or industries within the next decade.

Table 2: The five top global risks in terms of likelihood and impact, 2013–15

Ranking	2013		2014		2015	
	Likelihood	Impact	Likelihood	Impact	Likelihood	Impact
1st	Severe income disparity	Major systemic financial failure	Income disparity	Fiscal crises	Interstate conflict with regional consequences	Water crises
2nd	Chronic fiscal imbalances	Water supply crisis	Extreme weather events	Climate change	Extreme weather events	Rapid and massive spread of infectious diseases
3rd	Rising greenhouse gas emissions	Chronic fiscal imbalances	Unemployment and underemployment	Water crises	Failure of national governance	Weapons of mass destruction
4th	Water supply crises	Diffusion of weapons of mass destruction	Climate change	Unemployment and underemployment	State collapse or crisis	Interstate conflict with regional consequences
5th	Management of population ageing	Failure of climate change adaptation	Cyber attacks	Critical information infrastructure breakdown	High unemployment and underemployment	Failure of climate change adaptation

Source: World Economic Forum (2015), p.14

were thought in 2015 to pose the greatest threat over the coming decade.

The annual assessments undertaken by the World Economic Forum also identify the top five global risks, first by their likelihood, and second by their potential impact. The results for 2013, 2014 and 2015 are outlined in Table 2. Whatever the validity of such assessments, several matters are interesting to note. For one thing, at least a third of the global risks rated among the top five over the past three years relate directly or indirectly to climate change (e.g. water crises, extreme weather events and the challenges of adaptation). For another, about a quarter concern economic management (e.g. large fiscal imbalances, systemic financial failures and high unemployment). Significantly too, whereas severe income inequality figured prominently in both 2013 and 2014, it was not included among the top five risks in 2015. By contrast, interstate conflicts and the failure of national governance did not register among the top five risks in either 2013 or 2014 but were included in 2015 – no doubt reflecting the widening conflicts in the Middle East and North Africa and the destabilising political impacts of the mass migration of displaced people. The significant changes in the top-ranked risks over a relatively limited time horizon highlights not only how quickly risk perceptions can adjust but also the wisdom of regular monitoring and re-evaluation.

New Zealand faces a distinctive set of risks (Basher, 2016; Department

of the Prime Minister and Cabinet, 2007; Local Government New Zealand, 2014; Warren, 2014). In particular, it is exposed to a range of significant natural hazards, such as earthquakes, volcanic eruptions, tsunamis and extreme weather events. Also, its economy relies heavily on primary production and is thus vulnerable to adverse impacts from pests and diseases. The enormous damage caused by the Canterbury earthquakes during 2010–11 (estimated at about \$40 billion) highlights the scale of the risk (and potential contingent losses) from major seismic events near significant population centres.

Political risks – inadequate foresight and a presentist bias

As noted earlier, there is another kind of risk that deserves specific mention, namely that governments will fail to give proper attention to readily detectable threats or fail to pay sufficient heed to major societal trends or emerging opportunities. For instance, governments may be slow to adjust their regulatory policies to reflect changing technologies (e.g. drones or autonomous vehicles) or social conditions (e.g. evolving family structures). Likewise, they may fail to consider the economic and social implications of major technological innovations, such as advanced robotics and artificial intelligence. In short, governments may fail to exercise proper foresight – by anticipating problems, considering the available policy responses (including the option value of delay), and adjusting their policy settings to reflect

new evidence, evolving risk assessments and other changing circumstances.

Among the risks which may be overlooked or poorly addressed by governments is a particular class of policy problems variously referred to as ‘looming’, ‘creeping’, ‘slow’, ‘slow-burner’ or ‘emerging’ (European Environment Agency, 2013; Olson, 2016). Such problems tend to grow gradually and sometimes imperceptibly, with a long time lag between cause and effect. The negative impacts may be on the radar and their potential to cause significant long-term harm may be evident (at least to the relevant experts), but they generally lack vivid, dramatic or unmistakable early warning signals which can serve to mobilise public concern, thereby prompting a governmental response. As a result, creeping problems often receive much less attention from policymakers than they deserve. This, in turn, may reduce or even eliminate the possibility of implementing low-cost solutions and shift the burden of mitigation onto future citizens and taxpayers. Worse, in some cases the failure to intervene early may lead to serious and irreversible damage, with huge potential implications for the well-being of future generations.

Among the many contemporary ‘creeping’ problems facing governments are the following:

- long-term demographic changes such as population ageing;
- the growing obesity pandemic;
- the spread of antimicrobial resistance;

- the gradual increase in traffic congestion in major urban areas;
- the growing economic and environmental impacts of climate change and the related acidification of the world's oceans;
- the gradual loss of freshwater supplies due to the depletion of aquifers, deteriorating water quality, the over-allocation of freshwater resources, and changing climatic conditions;
- the increasing damage to ecosystem services from pollution, pests, soil erosion and the loss of habitats; and
- the gradual loss of biodiversity and wilderness areas.

There are at least four reasons why governments may fail to address creeping problems expeditiously or effectively (Boston, forthcoming; Jacobs, 2011; Olson, 2016). First, the problem may not be detected sufficiently early by the relevant authorities, or the nature of the risks may be poorly communicated to those within the policy community who are responsible for taking action. Failures of this nature may be attributed to poor monitoring, inadequate reporting, ambiguous or conflicting evidence, a lack of imagination (e.g. a failure to think through the possible consequences carefully and logically), excessive governmental secrecy, and a human tendency to underestimate and downplay future risks.

Second, there may be attentional deficits within the governmental system and the wider polity (i.e. the phenomenon of 'out of sight, out of mind'). Policymakers are faced with numerous urgent problems and multiple demands. These can easily distract them and result in only limited attention being given to creeping problems and other longer-term challenges. Similarly, in the absence of vivid and unambiguous warning signals, there will be little pressure from the public for governments to take precautionary measures or early remedial action.

Third, many creeping problems are 'trans-boundary' (or even cross-border) in nature and thus require coordinated responses from several tiers of government and/or from multiple organisations. But securing the necessary coordination is often hard because of the siloed structure

of government departments and agencies and the absence of structures and incentives to deal with systemic and cross-cutting risks.

Fourth, and related to this, many creeping problems are relatively 'wicked' in the sense that they have multiple causes and lack complete or definitive solutions. Additionally, the available strategies to ameliorate them typically generate significant intertemporal trade-offs. That is to say, the costs – whether fiscal or regulatory – fall disproportionately in the near term while the benefits often take many years to be realised. Non-simultaneous exchanges or cost-benefit asymmetries of this nature are inherently challenging politically (Jacobs, 2011). They require what are often referred to as 'hard

more reluctant to take decisive measures to confront a creeping problem. The net result is that such problems are likely to be tackled late or inadequately (or both).

The imposition of price-based policies in Australia and New Zealand to reduce greenhouse gas emissions provides a good example. On both sides of the Tasman, governments delayed enacting effective policies to mitigate climate change for many years. And almost as soon as price-based policies had been implemented they were either overturned or significantly watered down by a new government (Chapman, 2015).

In summary, sound anticipatory governance requires policymakers to identify, assess, manage and mitigate

... sound anticipatory governance requires policymakers to identify, assess, manage and mitigate multiple risks.

calls'. Understandably, governments may be fearful of the electoral consequences and thus reluctant to take preventative steps. Accordingly, despite the long-term risks being widely recognised and despite expectations that any delay in responding will impose greater overall costs, measures to mitigate the problem may be postponed. Alternatively, governments may act half-heartedly, choosing policies which minimise any short-term political damage.

There is also a risk of dynamic or time inconsistency (Elster, 2000; Hovi, Sprinz and Underdal, 2009; Kyland and Prescott, 1977). To be effective, many policies require sustained effort over lengthy periods and major changes in mass behaviour or social institutions. Yet governments cannot bind their successors. Significantly, too, most policies are reversible, at least to some degree. If policies aimed at mitigating future risks are unpopular or impose significant costs on powerful groups, a future government may decide to weaken or even terminate them. Mindful of such risks, policymakers may be even

multiple risks. In fulfilling these responsibilities they confront the challenge that some of the measures required for prudent long-term governance are politically unattractive. In such circumstances there is a constant risk that short-term considerations will prevail, thereby increasing the costs imposed on future generations. A presentist bias in policymaking is all the more concerning given humanity's ever-increasing capacity to inflict widespread, severe and persistent harm. The quest for sound anticipatory governance, therefore, must include the design and implementation of mechanisms to ameliorate this bias.

Assessing the quality of anticipatory governance – possible criteria

How might we assess how well governments are protecting the long-term interests of their current and future citizens? Put differently, how should the quality of anticipatory governance be evaluated? To address such questions properly would be a major undertaking. Here some brief observations and initial suggestions must suffice.

First, assessing the quality of anticipatory governance is part of the wider task of judging the overall quality of governments, public institutions and systems of public governance. Good governance must be anticipatory. But it must also be many other things: legal, honest, legitimate, democratic, effective, efficient, fair, accountable and much else. There is, however, no clear boundary to delineate the *anticipatory* part of good governance. Anticipatory governance is not simply about good planning for the future. And even if it were, good planning is demanding and requires many things: comprehensive and reliable information,

projections of existing trends (Aaron, 2000). Historical data, after all, may be unreliable for judging future performance – whether that of our economy, public institutions or regulatory frameworks. And abrupt economic, social, cultural, environmental or technological changes may render current trajectories invalid. At the same time, currently available data are not totally irrelevant. Indeed, in some cases existing data are extremely useful for assessing whether particular long-term interests are being adequately protected. For instance, if there is evidence of widespread environmental degradation

in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions.

But while resilience can be defined, assessing the resilience of systems, governments, individual public institutions, societies or communities is far from straightforward. Resilience has many features (e.g. robustness, redundancy, resourcefulness, responsiveness, and the capacity to recover or recuperate) (World Economic Forum, 2013, pp.38-9). Its relevance spans multiple policy domains and institutional contexts. And while there are numerous possible indicators, the relevant data are often unavailable. Assessing resilience also raises important issues of judgement. What criteria, for example, should be used to assess the capacity of an economy to absorb a major financial shock or a community to cope with a large seismic event? How much cushion against possible adverse outcomes is desirable? How much in-built redundancy should there be? What level of risk is acceptable? How much is it reasonable to spend on risk reduction? And who should be the judge? This is not to suggest that answers to such questions are impossible, but every answer is likely to be problematic in some way. Much the same conclusion applies to the challenge of defining and applying other important principles and concepts of relevance to protecting future interests, such as the nature of intergenerational justice, sustainability and good stewardship (Arrow et al., 2004; Brown Weiss, 1989; Chichilnisky, 1996; Zuber, forthcoming).

Third, as suggested earlier, sound anticipatory governance has many different dimensions and attributes. Accordingly, multiple criteria are needed to assess how well a particular government – and the wider system of public governance – is performing. While some of these criteria may be output- or outcome-oriented, others will focus on how political institutions and policymaking processes are designed. Hence, they will be concerned with values, norms, principles and

... while resilience can be defined, assessing the resilience of systems, governments, individual public institutions, societies or communities is far from straightforward.

excellent monitoring and reporting, capable staff, adequate resources, sound analytical tools and robust decision-making processes. Accordingly, assessments of anticipatory governance take us well beyond the confines of specific activities like strategic planning, foresight methods, risk management or emergency management.

Second, all assessments of the quality of governance involve the exercise of judgement and are potentially controversial. In the case of anticipatory governance there are some very obvious challenges. For one thing, our knowledge base is limited. We lack the luxury of jumping decades or centuries forward in time and then looking back to assess how well the governments of the early 21st century prepared for, and navigated, the future. Historians many generations from now will enjoy the benefit of such hindsight, but we do not. Hence, any assessment today will necessarily be imperfect and incomplete.

For another, we cannot simply rely on current performance data or

and species loss, then the long-term implications are unmistakable: future generations will inevitably be harmed.

There is a further problem assessing the quality of anticipatory governance. While numerous criteria can be suggested, many of these are hard to operationalise and apply. For instance, one of the many possible tests of good anticipatory governance is whether policymakers and public managers value and promote *resilience*. The idea of resilience – which is the focus of increasing attention internationally – includes flexibility and adaptability, the capacity to bounce back to a desired equilibrium after a shock, and the ability to absorb chronic stresses or abrupt impacts without serious damage or disruption (Warren, 2014). As defined in the United Nations International Strategy for Disaster Reduction (2009), it means:

The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard

procedures. Crucial here is whether long-term costs and benefits, as well as significant risks and opportunities, are brought adequately into short-term political focus. Of importance in this regard is whether governments make use of analytical tools, policy frameworks and decision-making processes that encourage reflection on long-term policy issues and incentivise decision-makers to devote some of their limited time, mental energy and political capital to protecting future interests. This, of course, begs many questions. How, for instance, can the ‘voice’ of the future be adequately represented in day-to-day decision-making? How can political incentives be altered so that governments feel obliged to address creeping problems? How can policymakers be encouraged to make ‘hard calls’? How can governments increase the durability of policy decisions which entail complex and often politically charged non-simultaneous exchanges? How, in other words, do we avoid immediate concerns crowding out or constantly trumping future interests?

While there are no simple solutions, there are certainly ways of structuring institutional arrangements, analytical frameworks and political processes such that long-term considerations are more likely to figure in the decision-making calculus (see, for instance, Ascher, 2009; Boston, forthcoming; Boston and Prebble, 2013; González-Ricoy and Gosseries, forthcoming; Helm, 2015; Jacobs, 2011; James, 2013; Mansbridge and Martin, 2013; Ostrom, 2009; Reeves, 2015). These include:

- requiring policymakers to have regard to the best available scientific evidence;
- ensuring a high level of transparency in decision-making at all levels of government;
- using analytical frameworks to formulate policy advice that capture the full range of likely costs and benefits (e.g. direct and indirect, tangible and intangible, etc.);
- ensuring that the impact of choosing different discount rates is fully transparent;

- instituting commitment devices that require the policy ‘system’ to conduct regular foresight exercises, undertake periodic long-term forecasts and projections, and develop long-term plans (e.g. for conservation, infrastructure and other forms of public investment);
- requiring governments to set explicit, meaningful and measurable targets (and related milestones) for improving outcomes, especially regarding significant long-term policy challenges;
- establishing independent future-

possible criteria for assessing the quality of anticipatory governance. Under the approach adopted, 17 types of criteria are organised within seven broad categories: overarching principles; planning processes and foresight; policy and regulatory frameworks; the representation of future interests; performance measures and reporting; resilience, risk management and emergency management; and mechanisms for problem solving and consensus building. While relatively comprehensive, the table is far from complete. Under each category additional types of criteria could be added – such

... there is little prospect of developing a single aggregate indicator or composite measure of the quality of anticipatory governance.

oriented institutions to provide an authoritative ‘voice’ for otherwise poorly represented long-term interests;

- encouraging respectful deliberation and informed, reasoned debate via the use of participatory mechanisms, multi-stakeholder forums and collaborative policymaking processes;
- nurturing trust, shared values and common goals; and
- seeking cross-party agreements where durable long-term commitments are needed to address major policy problems.

Finally, there is little prospect of developing a single aggregate indicator or composite measure of the quality of anticipatory governance. There are simply too many different variables and they cover too many different kinds of performance. Instead, a better approach would be to employ a performance dashboard with multiple criteria and a simple scoring regime. This enables comparisons over time and between governments, but of course it lacks the simplicity of a single metric.

With these various considerations in mind, Table 3 outlines some of the

as those of relevance to different tiers of government, specific institutions or discrete policy domains (e.g. culture and heritage, health, taxation, security, defence and international relations). Similarly, many extra performance indicators could be added. Moreover, the approach sketched here provides no ranking of the various criteria. Nevertheless, it serves as a useful starting point and a good basis for further discussion and refinement.

The quality of anticipatory governance in New Zealand

How does New Zealand fare against such criteria? Currently, no comprehensive or detailed evaluation is available. There are, however, assessments based on some of the suggested criteria. For instance, Ken Warren (2014) has helpfully analysed the resilience of New Zealand’s economy and society, with particular reference to four types of capital (financial, human, social and natural). Drawing on studies of this nature and other available data (e.g. Ryan and Gill, 2011), it is reasonable to conclude that many of New Zealand’s governance arrangements, policy settings and regulatory frameworks are appropriately future-focused and suitably anticipatory.

Table 3: Suggested criteria for assessing the quality of anticipatory governance

	Types of criteria	Brief comment	Examples of possible policy requirements and performance indicators
Overarching principles			
1	Policy settings should be consistent with well-established principles of intergenerational justice.	While there are many different principles of intergenerational justice, there is wide support for the view that current generations should not inflict serious, widespread or irreversible harm or act in ways that compromise the capacity of future generations to meet their needs. Ideally, current generations should act in ways that ensure that future generations are better off – as judged on the basis of multiple criteria.	<ul style="list-style-type: none"> • There should be legislative requirements for governments to adhere to well-established principles of intergenerational justice. • There should be legislative requirements for governments to report periodically on whether their policies are consistent with well-established principles of intergenerational justice. • There should be legislative requirements for governments to publish annual data of relevance to distributional and other issues with intergenerational dimensions, including a composite index of intergenerational fairness.
2	The principle of sustainability should be embedded in all relevant policy frameworks.	The concept of sustainability is open to multiple interpretations, including the distinction between ‘strong’ and ‘weak’. Important in this regard is the issue of whether, and to what extent, different kinds of capital (e.g. financial, manufactured, human, social and natural) are substitutable.	<ul style="list-style-type: none"> • There should be legislative requirements for governments to comply with various principles of fiscal responsibility, including achieving and maintaining prudent levels of public debt. • There should be legislative requirements for governments, at a minimum, to maintain the aggregate level of renewable natural capital. • There should be legislative requirements for the economic rents from the depletion of non-renewable natural capital to be used to fund efforts to enhance stocks of renewable natural capital. • There should be legislative requirements for comprehensive environmental accounting, including the valuing of ecosystem systems. • There should be effective measures to protect biodiversity.
3	Policymakers at all levels of government should be obliged to adhere to the precautionary principle.	There are many different versions of the precautionary principle, with widely divergent implications for decision-making. Key issues include: when and how a precautionary approach is applied; where the burden of proof should rest for demonstrating the existence or absence of a threat of harm; how the potential threats should be balanced against other relevant considerations; and how responsibility for any harm should be allocated.	<ul style="list-style-type: none"> • There should be legislative provisions requiring decision-makers to give effect to the precautionary principle – ideally at the stronger end of the potential spectrum of possible interpretations, with the burden of proof resting with those proposing actions that may generate a new risk or threat of harm.
4	Public sector managers should be required to exercise proper stewardship (or kaitiakitanga) of their organisations.	The notion of stewardship, while closely related to sustainability, has implications not only for durability and resilience but also for the prudent and responsible management of resources.	<ul style="list-style-type: none"> • There should be legislative provisions requiring public sector managers to exercise good stewardship of their organisations, including their assets and liabilities, their long-term sustainability, their overall health and capability and their capacity to offer high-quality advice to successive governments. • There should be legislative provisions requiring public sector managers to ensure good regulatory stewardship – in the sense that the regulatory frameworks they administer are fit for purpose, implemented in a cost-effective manner, and reflect changing needs and circumstances.
Planning processes and foresight			
5	Governments should be required to undertake long-term planning of public infrastructure.	The proper maintenance, renewal and improvement of public infrastructure is of critical importance for protecting future interests. There is no agreement, however, on what constitutes an optimal level of investment in infrastructure or how the impacts of long-term trends, such as sea-level rise, should be taken into account.	<ul style="list-style-type: none"> • There should be requirements for central and subnational governments to prepare plans and strategies for the management of public infrastructure over a long time horizon (e.g. 30 years+). • The planning of public infrastructure should have proper regard to the evolving risk environment, including the long-term impacts of climate change and the need for adaptive management.
6	Governments should be required to undertake long-term planning across the full range of their investment activities.	There is a question mark over what constitutes an ‘investment’, how ‘returns’ on investments should be assessed, and when and how investment criteria should be applied in allocating public resources.	<ul style="list-style-type: none"> • Governments should be required to publish periodic national investment statements assessing the shape, health and evolving value of the Crown’s portfolio of assets and liabilities, and forecast changes in the portfolio’s composition and size. • Investment-intensive government agencies should be required to prepare long-term investment plans.
7	There should be robust foresight processes at all levels of government, including requirements for independent bodies to report periodically on major risks and vulnerabilities across the full range of policy arenas.	There are many different methods and processes for undertaking foresight, including horizon scanning, trend analysis and technology assessment. There is merit in institutionalising foresight processes within both the executive and legislative branches to ensure that risks are identified and that proper attention is given to creeping problems.	<ul style="list-style-type: none"> • There should be a legislative requirement for the government to produce a periodic report on the future, identifying major risks and vulnerabilities as well as creeping problems, and outlining its plans to address these risks and problems. • There should be a parliamentary committee for the future with responsibilities to undertake horizon scanning, investigate long-term policy problems, monitor governmental efforts to mitigate and manage risks, and review the government’s report on the future. • There should be requirements for the treasury/finance ministry to produce periodic reports on long-term fiscal issues, looking out at least 40–50 years. • There should be a foresight unit within a central agency with a mandate to undertake foresight projects on major policy issues, conduct assessments of the impact of significant new technologies, and coordinate the foresight activities of government departments and agencies.

Types of criteria	Brief comment	Examples of possible policy requirements and performance indicators
Policy and regulatory frameworks		
8	The long-term costs and benefits of different policy options should be clearly identified and made transparent to policymakers.	<ul style="list-style-type: none"> Whenever policy options entail long-term costs and benefits a range of discount rates should be applied in order to ensure that the implications of the discount rate are ascertained. If there is a risk of irreversible and/or catastrophic long-term impacts, an extremely low discount rate should be applied.
9	Regulatory frameworks should ensure that all significant negative externalities are properly internalised.	<ul style="list-style-type: none"> Regulatory frameworks should ensure that all significant negative externalities, such as damaging environmental and health impacts, are properly priced.
10	There should be rigorous systems for policy learning.	<ul style="list-style-type: none"> All significant policies and regulatory frameworks should be periodically reviewed and evaluated. Governments should be required to report on their responses to all major policy evaluations.
The representation of future interests		
11	There should be independent public institutions with a legislative mandate to speak on behalf of clearly specified future-oriented interests.	<ul style="list-style-type: none"> There should be an independent public institution to monitor environmental performance and safeguard environmental interests. There should be an independent public institution to represent the interests and defend the rights of children. There should be an independent public institution with a specific mandate to study creeping problems and publish periodic reports on major long-term risks.
Performance measures and reporting		
12	There should be comprehensive and holistic measures for assessing economic, social and environmental performance and regular reporting of outcomes across the full range of policy domains.	<ul style="list-style-type: none"> There should be legislative provisions requiring governments to publish comprehensive data on performance across all policy domains. The information reported needs to be presented in ways that enhance understanding, highlighting warning signals and making feedback 'intelligent'.
13	Governments should be required to publish comprehensive national balance sheets covering all forms of capital, not merely public sector financial liabilities and assets.	<ul style="list-style-type: none"> There should be legislative requirements for governments to publish comprehensive national balance sheets. Companies should be required to publish accounts that are consistent with the conventions, standards and practices associated with sustainability reporting or integrated reporting.
Resilience, risk reduction and emergency management		
14	There should be comprehensive policies for disaster risk reduction and strengthening the resilience of all critical infrastructure and systems.	<ul style="list-style-type: none"> Policy frameworks should be consistent with international best practice, such as the goals and principles of the Sendai Framework for Disaster Risk Reduction (2015). This includes a strong emphasis on disaster risk management, preventing new risk, reducing existing risk and strengthening resilience, and covers both natural and man-made hazards, including environmental, technological and biological hazards and risks. All subnational governments should be required to produce periodic reports on their resilience.
15	There should be a substantial sovereign wealth fund.	<ul style="list-style-type: none"> There should be a substantial sovereign wealth fund – or several funds, each with clearly specified purposes. There should be clearly specified criteria for determining the circumstances under which such funds can be drawn down.

Types of criteria	Brief comment	Examples of possible policy requirements and performance indicators
16	There should be regular 'stress tests' to evaluate the resilience and adaptive capacity of public institutions, policy settings and regulatory frameworks.	In the context of deep uncertainty and unavoidable risks, it is imperative to seek a high level of resilience and adaptive capacity, at multiple levels of governance.
Mechanisms for problem solving and consensus building for long-term policy challenges		
17	Governments should use a wide range of participatory processes for policymaking on long-term issues.	Participatory processes of various kinds can be useful in enhancing public understanding, building trust, securing agreement on shared goals, and negotiating solutions to complex intertemporal issues.

Institutional strengths

To start at the positive end of the spectrum:

- current legislative frameworks in important policy areas such as fiscal management, resource management and public management embrace one or more of the overarching principles identified in Table 3;
- under section 10(1)(b) of the Local Government Act 2002, local authorities are required 'to meet the current *and future* [my emphasis] needs of communities for good-quality local infrastructure, local public services, and performance of regulatory functions';
- the rules governing financial management and accounting in the public sector embody a high level of transparency and ensure that the depreciation of assets is fully costed;
- the Reserve Bank operates an exacting system of prudential supervision of the financial sector;
- those responsible for managing public infrastructure and determining other kinds of capital investment are required to produce multi-decadal plans;
- major departments like the Treasury and the Ministry for the Environment have comprehensive and holistic analytical frameworks to guide their policy analyses, with attention being given to multiple goals and the full range of capital stocks;
- the Treasury is required to produce regular long-term fiscal statements looking out 40 years;
- there is strong support for evidence-based policymaking, underscored

- in recent years by the appointment of chief science advisors in many departments;
- there are independent public institutions, such as the parliamentary commissioner for the environment and the children's commissioner, to represent important future-oriented interests;
- there are requirements for public agencies to monitor, assess and report performance on a relatively comprehensive basis;
- there are detailed requirements for risk management and emergency management;
- there are several public funds that are designed to pre-fund future liabilities, including the National Disaster Fund for major natural disasters, the New Zealand Superannuation Fund to cover part of the cost of future public pension liabilities in the context of an ageing population, and a fund administered by the Accident Compensation Corporation to cover the full lifetime costs of accident claims;
- multi-stakeholder mechanisms are employed from time to time to explore and negotiate solutions to important long-term policy challenges (e.g. freshwater management).

Institutional weaknesses

That said, there are also many areas where the requirements for good anticipatory governance (e.g. in terms of institutional mechanisms, regulatory frameworks and decision-making processes) are deficient. Important weaknesses include:

- the limited attention given to the principles of intergenerational justice in decision-making on policy

- issues with major intertemporal implications;
- the relatively weak application of the precautionary principle and the goal of sustainability, especially in the areas of resource management and environmental protection;
- the lack of any high-level foresight unit in central government or requirements for all departments and major agencies to conduct regular foresight exercises, such as horizon scanning, the identification of creeping problems and the formulation of strategies to address them;
- the absence of requirements for governments to prepare periodic reports on the future, including on major long-term issues;
- the lack of a parliamentary select committee with a mandate to focus on future-oriented policy challenges and intergenerational issues;
- the limited requirements for governments to protect the nation's aggregate level of renewable natural capital or retain a substantial part of resource rentals within a sovereign wealth fund (e.g. to compensate future generations for the loss of non-renewable natural capital);
- the absence of comprehensive wealth accounting or national balance sheets covering most or all forms of capital;
- the relatively limited application, at least to date, of the Treasury's Living Standards Framework to policy analysis and governmental decision-making;
- the use of a relatively high discount rate in cost-benefit analyses (up to 8%);

- the absence of a comprehensive national policy framework for managing the impacts of climate change;
- the limited investment in assessing the economic, social and environmental implications of new technologies;
- the absence of: 1) a comprehensive national risk register; 2) a comprehensive risk assessment and plan for risk reduction; 3) regular stress-testing of resilience and adaptive capacity; and 4) regular reporting on disaster events, disaster risks and actions to reduce disaster risks (although natural hazards are well identified, a National Hazards Research Platform was established in 2009 to provide long-term funding for research on natural hazards, and one of the 11 National Science Challenges focuses on Resilience to Nature's Challenges) (Basher, 2016); and
- the relatively modest use of deliberative processes, multi-stakeholder forums and collaborative governance mechanisms to address major long-term policy challenges – although such arrangements are now viewed more favourably by the current government.

In summary, the New Zealand policy system lacks many of the commitment devices, both of a substantive and a procedural nature, that oblige decision-makers to take future-oriented interests into account, adhere to future-related policy principles or report regularly on their performance in addressing long-term policy challenges. Such devices cannot, of course, guarantee that governments will make decisions that protect future interests, but they can help reduce the extent to which such interests are ignored.

Policy outcomes – a very mixed record

The weaknesses in institutional design identified above have almost certainly contributed to New Zealand's very mixed performance in recent decades, as judged by various economic, social and environmental indicators. On the one hand, there are important policy domains, such as fiscal and monetary policy, where

strong commitment devices have been implemented to protect future-oriented interests (i.e. via the Public Finance Act 1989 and the Reserve Bank Act 1989). With little doubt these devices have had a positive impact on decision-making and policy outcomes. Over recent decades, for instance, New Zealand has achieved an enviable record with regard to inflation (except for asset prices) and fiscal management – as reflected in the substantial reduction in net public debt since the early 1990s (Buckle and Cruikshank, 2013; Gemmell and Gill, 2016).

incentives for building low-cost homes and substandard regulation (Howden-Chapman, 2015);

- serious traffic congestion arising from poor traffic management and inadequate investment in public infrastructure, especially in Auckland;
- weak environmental performance, arising in part from the poor management and inadequate protection of certain forms of renewable natural capital (e.g. freshwater) (Joy, 2015);

... current governance arrangements include a range of procedural and substantive commitment devices to encourage decision-makers to consider future-oriented interests, some of these devices are weak and the existing framework contains important gaps.

On the other hand, there are many policy areas where outcomes have been far less satisfactory, often with significant intergenerational implications. Examples include:

- relatively high rates of childhood poverty and material deprivation, including the limited public investment in mitigating disadvantages experienced during early childhood (Boston and Chapple, 2014);
- high (and increasing) rates of adult and childhood obesity, with almost a third of adults (i.e. those aged 15 years and over) obese in 2014/15, a further 35% of adults overweight but not obese, and a third of children either obese or overweight (Ministry of Health, 2015);
- major housing challenges, including serious overcrowding, homelessness and low-quality private rental accommodation, the product of, among other things, inadequate investment in social housing, weak

- one of the world's worst records for the loss of native habitat and biodiversity (e.g. 799 native species were 'threatened' in 2011, of which 417 were in a 'critical' state, 175 'endangered' and 207 'vulnerable'; 40% of bird species and 85% of native lizards were threatened or at risk) (Brown et al., 2015; Warren, 2014);
- a very high rate of soil being lost to the oceans annually (i.e. about ten times the global average) (Hicks et al., 2011); and
- high greenhouse gas emissions per capita due in part to ineffective price-based mechanisms and deficient regulatory frameworks (Chapman, 2015).

These poor outcomes reflect the failure of successive governments to exercise wise stewardship and adopt an anticipatory approach to policymaking. Too often governments have been unwilling to make hard policy choices, confront vested interests and impose non-simultaneous

exchanges. Similarly, unlike the situation in some other democracies (e.g. in Scandinavia), they have been reluctant to use multi-stakeholder mechanisms to secure negotiated solutions to complex and controversial intertemporal issues.

Suggested reforms

The weaknesses outlined above provide a good indication of how New Zealand might strengthen its anticipatory governance. Five possible areas of reform deserve highlighting.

First, while New Zealand's current

(Karacaoglu, 2015). But in its current form it lacks sufficient specification to guide policymaking. In part this is because some of the five goals to which the framework gives priority are inadequately stipulated. For instance, it is unclear what is meant by the goal of *equity* (e.g. which material principles of justice are relevant for policy purposes and how they should be prioritized). Nor does the framework provide much guidance about the meaning of, or requirements for, intergenerational fairness. Similar weaknesses are evident in its approach to *sustainability*. Equally

authorities, with more exacting biophysical bottom lines (especially for air, water and marine resources); tighter rules to protect renewable natural capital, perhaps along the lines proposed by Dieter Helm (2015); greater compensation for future generations to reflect the irreversible loss of non-renewable resources; and a comprehensive strategy to decarbonise the economy and prepare for the adverse impacts of climate change (especially sea level rise) (Lawrence, 2016). But given the political power wielded by narrow commercial interests over recent decades, achieving the required reforms will be hard.

Fourth, New Zealand has an abysmal record for child abuse, neglect, childhood material deprivation and obesity. Children represent the country's future. A failure to safeguard their interests is damaging to their future life course, thereby increasing long-term fiscal costs and reducing social and economic returns. Accordingly, policies to improve childhood outcomes – especially for the least advantaged – must be an integral part of any strategy to enhance anticipatory governance. In this regard, developing an official index of intergenerational fairness might help focus the attention of citizens and policymakers on whether current policy settings unduly favour particular generations (see Leach and Hanton, 2015). Also critical is the need for a well-designed social investment approach – the foundations of which are slowly emerging (James, 2016).

Finally, as suggested earlier, there is a case for experimenting with new ways of confronting creeping problems and finding lasting solutions to long-term societal challenges with politically unpalatable intertemporal trade-offs. There is good international evidence that deliberative mechanisms, multi-stakeholder forums and collaborative processes can be useful in exposing influential groups to the best available evidence, building a common understanding of the policy options and negotiating durable agreements (James, 2013; Mansbridge and Martin, 2013). Policymakers must be more willing to employ such institutional arrangements in the interests of better long-term governance.

New Zealand has taken significant steps to this end in recent decades, most notably in the fields of fiscal policy, infrastructure planning, public investment and public sector management.

governance arrangements include a range of procedural and substantive commitment devices to encourage decision-makers to consider future-oriented interests, some of these devices are weak and the existing framework contains important gaps. Among the changes needed are additional legislative requirements for governments to set measurable goals and specific targets, especially in policy domains with significant intertemporal implications. Further, both the executive and legislative branches should be required to conduct regular foresight exercises. To assist with such efforts a permanent, high-level foresight unit modelled on those in Britain, Canada or Singapore should be established. Governments should also be obliged to publish a comprehensive register of systemic risks and regularly update it. Each of these proposals would be reasonably cheap to implement.

Second, the Treasury's Living Standards Framework represents a valuable and important step towards developing a more holistic – and future-focused – approach to policy analysis which encompasses the full range of capital stocks and policy impacts

significant, the application of the Living Standards Framework is limited by the absence of a system of comprehensive wealth accounting and national balance sheets incorporating most or all forms of capital (see Arrow et al., 2012; Hamilton, 2014; Hamilton and Hartwick, 2014; Hamilton and Hepburn, 2014). Without reliable data on the nation's comprehensive wealth and more specific knowledge about how various policy decisions will affect particular types of capital (including, for instance, the quality and quantity of various ecosystem services), there is an increased risk of policymakers short-changing the future. Addressing these conceptual, analytical and methodological deficiencies will require a substantial commitment of intellectual resources.

Third, and related to this, New Zealand has been poor at protecting some of its vital natural capital (e.g. soil and freshwater) and minimising biodiversity loss. This suggests the need for more powerful institutional voices to represent environmental interests, as well as significant policy reforms to minimise negative environmental externalities. Among the changes required are: stronger national guidance for local

Conclusion

Advancing better government requires improved anticipatory governance. As argued in this article, such governance has many attributes. Above all, it means taking care of tomorrow today. Plainly, this is a difficult task. Governments face a daunting array of risks, incessant demands, complex policy trade-offs, and much uncertainty – indeed, often deep uncertainty. Moreover, there is a constant risk that the urgent problems of today will divert attention from, and thwart efforts to address, the problems of tomorrow. As a result, future generations may be needlessly and unjustifiably burdened. To mitigate such risks, governments must take countervailing measures. In particular, they need strong commitment devices that oblige policymakers to look beyond their immediate horizons. This includes institutional mechanisms and procedural requirements that bring the

long term sharply and repeatedly into short-term political focus, such as regular, dedicated and independent analyses of intergenerational issues. Governments also need, in the face of numerous unavoidable risks, to pursue strategies to enhance societal resilience and adaptive capacity.

New Zealand has taken significant steps to this end in recent decades, most notably in the fields of fiscal policy, infrastructure planning, public investment and public sector management. But in many other fields, especially social and environmental policy, the current policy institutions and frameworks are deficient. As a result, the country is running substantial social and ecological deficits and accumulating large liabilities. In some cases, regrettably, the consequences will be irreversible. We have a responsibility to future generations to do better.

This article has offered some initial thoughts on the nature of anticipatory governance, how it might be assessed and how it can be improved. We all have an interest in taking up the challenge. Safeguarding our future depends on it.

- 1 The concept of a 'commitment device' refers to a mechanism that is designed to change the structure of intertemporal pay-offs and/or limit future discretion by binding a person, organisation or government to a particular course of action. Commitment devices can take many different forms, from marriage vows to multi-party agreements. In the policy realm they can include constitutional or quasi-constitutional mechanisms, procedural and substantive devices, and mechanisms that are designed to insulate decisions from short-term political influence (e.g. transferring decision-rights to an independent group of experts) (see Boston, forthcoming; Reeves, 2015).
- 2 Resource management and environmental protection are major exceptions to these centralising tendencies.

Acknowledgements

I am most grateful to Marie Brown, Girol Karacaogul, Toby Moore and Ken Warren for their helpful comments on an earlier draft of this article.

References

- Aaron, H. (2000) 'Presidential address: seeing through the fog: policymaking with uncertain forecasts', *Journal of Policy Analysis and Management*, 19 (2), pp.193-206
- Arrow, K. et al. (2004) 'Are we consuming too much?', *Journal of Economic Perspectives*, 18 (3), pp.147-72
- Arrow, K. et al. (2012) 'Sustainability and the measurement of wealth', *Environment and Development Economics*, 3 (17), pp.317-53
- Ascher, W. (2009) *Bringing in the Future: strategies for farsightedness and sustainability in developing countries*, Chicago: Chicago University Press
- Basher, R. (2016) 'High Stakes – Disaster Risk in New Zealand', *Policy Quarterly*, 12 (3), pp.25-29
- Boston, J. (forthcoming) *Governing for the Future: designing democratic institutions for a better tomorrow*, Bingley: Emerald
- Boston, J. and R. Prebble (2013) 'The role and importance of long-term fiscal planning', *Policy Quarterly*, 9 (4), pp.3-8
- Boston, J. and S. Chapple (2014) *Child Poverty in New Zealand*, Wellington: Bridget Williams Books
- Boston, J., J. Wanna, V. Lipski and J. Pritchard (eds) (2014) *Future-proofing the State: managing risks, responding to crises and building resilience*, Canberra: ANU Press
- Brown, M., R. Stephens, R. Peart and B. Fedder (2015) *Vanishing Nature: facing New Zealand's biodiversity crisis*, Auckland, Environmental Defence Society
- Brown Weiss, E. (1989) *In Fairness to Future Generations: international law, common patrimony, and intergenerational equity*, Tokyo: United Nations University
- Buckle, R. and A. Cruikshank (2013) *The Requirements for Long-run Fiscal Sustainability*, working paper 13/20, Wellington: The Treasury
- Chapman, R. (2015) *Time of Useful Consciousness: acting urgently on climate change*, Wellington: Bridget Williams Books
- Chichilnisky, G. (1996) 'An axiomatic approach to sustainable development', *Social Choice and Welfare*, 13, pp.231-57
- Department of the Prime Minister and Cabinet (2007) *National Hazardscape Report*, Wellington: Officials' Committee for Domestic and External Security Coordination
- Elster, J. (2000) *Ulysses Unbound: studies in rationality, precommitment, and constraint*, Cambridge: Cambridge University Press
- European Environment Agency (2013) *Late Lessons from Early Warnings: science, precaution, innovation*, Copenhagen: European Environment Agency
- Fuerth, L. with E. Faber (2012) *Anticipatory Governance: practical upgrades – equipping the executive branch to cope with increasing speed and complexity of major challenges* Washington, DC: Elliott School of International Affairs, George Washington University
- Fuerth, L. with E. Faber (2013) 'Anticipatory governance: winning the future', *The Futurist*, July–August, pp.42-9
- Gemmell, N. and D. Gill (2016) 'The myth of the shrinking state? What does the data show about the size of the state in New Zealand 1900–2015', *Policy Quarterly*, 12 (3), pp.3-10
- González-Ricoy, I. and A. Gosseries (eds) (forthcoming) *Designing Institutions for Future Generations*, Oxford: Oxford University Press
- Hamilton, K. (2014) 'Biodiversity and national accounting', in D. Helm and C. Hepburn (eds), *Nature in the Balance: the economics of biodiversity*, Oxford: Oxford University Press
- Hamilton, K. and J. Hartwick (2014) 'Wealth and sustainability', *Oxford Review of Economic Policy*, 30 (1), pp.170-87
- Hamilton, K. and C. Hepburn (2014) 'Wealth', *Oxford Review of Economic Policy*, 30 (1), pp.1-20
- Healy, A. and N. Malhorta (2009) 'Myopic voters and natural disaster policy', *American Political Science Review*, 103 (3), pp.387-406
- Heller, P. (2003) *Who Will Pay? Coping with aging societies, climate change and other long-term fiscal challenges*, Washington, DC: IMF
- Helm, D. (2015) *Natural Capital: valuing the planet*, New Haven: Yale University Press
- Hicks, D. et al. (2011) 'Suspended sediment yields from New Zealand rivers', *Journal of Hydrology*, 50, pp.81-142

- Hovi, J., D. Sprinz and A. Underdal (2009) 'Implementing long-term climate policy: time inconsistency, domestic politics, international anarchy', *Global Environmental Politics*, 9 (3), pp.20-39
- Howden-Chapman, P. (2015) *Home Truths: confronting New Zealand's housing crisis*, Wellington: Bridget Williams Books
- Jacobs, A. (2011) *Governing for the Long Term*, Cambridge: Cambridge University Press
- Jacobs, A. (2016) 'Policymaking for the long term in advanced democracies', *Annual Review of Political Science*, 19, June
- James, C. (2013) 'Making big decisions for the future', *Policy Quarterly*, 9 (4) pp.21-8
- James, C. (2016) 'Social investment: chance for a mentality shift', <http://www.colinjames.co.nz/2016/03/07/investment-chance-for-a-mentality-shift/>
- Joy, M. (2015) *Polluted Inheritance: New Zealand's freshwater crisis*, Wellington: Bridget Williams Books
- Kahnemann, D. (2011) *Thinking, Fast and Slow*, London: Penguin
- Karacaoglu, G. (2015) *The New Zealand Treasury's Living Standards Framework: a stylised model*, Wellington: The Treasury
- Kyland, F. and E. Prescott (1977) 'Rules rather than discretion: the inconsistency of optimal plans', *Journal of Political Economy*, 85 (3), pp.473-92
- Lawrence, J. (2016) 'Implications of Climate Change for New Zealand's Natural Hazards Risk Management', *Policy Quarterly*, 12 (3), pp.30-39
- Leach, J. and A. Hanton (2015) *Intergenerational Fairness Index 2015*, London: Intergenerational Foundation
- Local Government New Zealand (2014) *Managing Natural Hazard Risk in New Zealand: towards more resilient communities: a think piece for local and central government and others with a role in managing natural hazards*, Wellington: Local Government New Zealand
- MacKenzie, M. (2013) 'Future Publics: democratic systems and long-term decisions', PhD thesis, University of British Columbia
- Mansbridge, J. and C. Martin (eds) (2013) *Negotiating Agreements in Politics*, taskforce report, Washington, DC: American Political Science Association
- Ministry of Health (2015) *Annual Update of Key Results 2014/15: New Zealand health survey*, Wellington: Ministry of Health
- Olson, R. (2016) *Missing the Slow Train: how gradual change undermines public policy and collective action*, Washington, DC: Wilson Centre
- Ostrom, E. (2009) 'Beyond markets and states: polycentric governance of complex economic systems', Nobel Prize lecture, Workshop in Political Theory and Policy Analysis, Indiana University, Bloomington
- Reeves, R. (2015) *Ulysses Goes to Washington: political myopia and policy commitment devices*, Washington, DC: Centre for Effective Public Management, Brookings Institution
- Ryan, B. and D. Gill (eds) (2011) *Future State: directions for public management in New Zealand*, Wellington: Victoria University Press
- Smil, V. (2006) *Global Catastrophes and Trends: the next fifty years*, Boston: MIT Press
- Taleb, N. (2007) *The Black Swan: the impact of the highly improbable*, London: Penguin
- Thaler, R. and C. Sunstein (2008) *Nudge: improving decisions about health, wealth and happiness*, New Haven: Yale University Press
- Thompson, D. (2005) 'Democracy in time: popular sovereignty and temporal representation', *Constellations*, 12 (2), pp.245-61
- Thompson, D. (2010) 'Representing future generations: Political presentism and democratic trusteeship', *Critical Review of International Social and Political Philosophy*, 13 (1), pp.17-37
- Treasury (2013) *Affording our Future: statement on New Zealand's long-term fiscal Position*, Wellington: The Treasury
- United Nations International Strategy for Disaster Reduction Secretariat (2009) *Risk and Poverty in a Changing Climate: 2009 global assessment report on disaster risk reduction*, New York
- Warren, K. (2014) 'Evidence of resilience of New Zealand's capitals', Wellington: internal Treasury paper
- World Economic Forum (2013) *Global Risks 2013*, Geneva: World Economic Forum
- World Economic Forum (2015) *Global Risks 2015*, Geneva: World Economic Forum
- Zuber, S. (forthcoming) 'Measuring intergenerational fairness', in I. González-Ricoy and A. Gosseries (eds), *Institutions for Future Generations*, Oxford: Oxford University Press

Relate - Resolve - Restore

The 2016 Conflict Resolution Conference
15-16 November 2016 | Wellington, New Zealand

Brought to you by the Resolute Institute, Restorative Practices Aotearoa, Restorative Practices International and Victoria University of Wellington

Relate Resolve Restore

The 2016
Conflict Resolution
Conference
15-16 November,
Wellington, New Zealand

This unique, multi-disciplinary conference will explore the broad spectrum of alternative conflict resolution processes, looking at both the latest developments within each discipline and the potential for cross-fertilisation and collaboration between approaches.

See more at www.confer.co.nz/crc

www.confer.co.nz/crc