

Working Paper 2021/02a

Climate change analysis of Government Department Strategies in operation as at 31 December 2020

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1.0 Introduction

1.1 Background

The Government Department Strategies (GDS) Index aims to make transparent and ideally strengthen the New Zealand government's strategies and make each strategy more effective, responsive and durable and enable departments to apply a more collaborative approach (e.g. where two or more departments might work towards the same goal). Over the long term it is hoped that the GDS will contribute to a broader discussion around how to build a more durable strategic framework for New Zealand.

The McGuinness Institute released *Working paper 2021/02 – List of Government Department Strategies as at 31 December 2020* to each department between 24 March 2021 and 13 April 2021 to ensure that the Institute has understood each department's initial response and to provide an opportunity for further questions and discussion.

1.2 Purpose

The purpose of *Working Paper 2021/02a – Climate change analysis of Government Department Strategies in operation as at 31 December 2020* is to understand and report on the extent climate change is being reported in the GDSs in operation as at 31 December 2020. The working paper includes three appendices:

- Appendix 1: Explicit climate change strategies
- Appendix 2: Implicit climate change strategies
- Appendix 3: List of 20 GDSs in operation that contain action points to tackle climate change

The working paper builds on the results of *Working Paper 2019/04 – Analysis of Government Department Strategies between 1 July 1994 and 31 December 2018*. However, this year we take a closer look at the explicit climate change strategies (currently 35 out of a total 199), to identify and list the actions that have been specified. These are summarised by the Institute in the last column of the table in Appendix 1: Explicit Climate Change Strategies.

This 2021 paper belongs to a suite of 2021–2022 papers listed below:

- *Working Paper 2021/02 – List of Government Department Strategies as at 31 December 2020¹*
- *Working Paper 2021/08 – Methodology for the 2021 Government Department Strategies Index New Zealand*
- *Working Paper 2022/02 – Scoring Tables Collating and Ranking Government Department Strategies in operation as at 31 December 2020*
- *Working Paper 2022/03 – Comprehensive analysis of Government Department Strategies between 1 July 1994 and 31 December 2020*
- *Working paper 2021/02a – Climate change analysis of Government Department Strategies in operation as at 31 December 2020*

2.0 Methodology

In order to add to the conversation on the optimal climate change strategy it is important to understand what strategy is currently being implemented. This work enables readers to make an assessment on whether our current actions will be sufficient to deliver on our ambition, and if not, how we might change the current strategies and possibly strategic direction to achieve our goals.

2.1 Method

Stage 1: We searched each GDS PDF using Version 2 of *Working Paper 2021/02 – List of Government Department Strategies as at 31 December 2020*. Only one word was searched and that was ‘climate’. That resulted in 70 GDSs being found to include the word climate.

Stage 2: Each of the 70 GDSs were reviewed to check whether the mention of ‘climate’ was related to climate change or had another context (e.g. economic climate). This led to the removal of 9 GDS, leaving 61 GDSs that mention climate change.

Stage 3: Text from the 61 GDSs that discussed climate change was copied into an Excel document and then sorted into whether the GDS discussed climate change explicitly or implicitly:

- Explicit – means a detailed mention of climate change with discussion of possible impacts on the department’s approach. This leads to 35 GDSs; see Appendix 1: Explicit Climate Change Strategies.
- Implicit – means a minimal mention of climate change with little discussion of impact on the department’s approach. This leads to 26 GDS; see Appendix 2: Implicit Climate Change Strategies.

Stage 4: The 35 GDSs were then analysed in terms of actions that were stated in each GDS. The Institute’s summary of these action points is shown in the last column of Appendix 1: Explicit Climate Change Strategies.

- Action points – means an action that can be ticked off when completed. It should ideally have a cost, the name of the responsible organisation, and an expected date of completion. Alternatively, instead of a date, it could describe what completion would look like (i.e. specifying when one or a number of goals have been achieved, e.g. zero by 2050). Given the general lack of clarity in the dialogue in the 35 GDSs, the Institute has taken a generous interpretation of action points this year. The aim is to illustrate the size of the systemic problem that we as a country face.

Stage 5: Both explicit (35) and implicit strategies (26) were then assessed and grouped in terms of (i) departments and (ii) government sectors. This led to the strategy wheels in Figures 7 and 8.

2.2 Criteria

A government department strategy GDS) must:

- 1) be a publicly available statement or report,
- 2) be generated by government departments with a national rather than a local focus,
- 3) demonstrate long-term thinking presented in such a way that the strategy links to a long-term vision or aim, and ideally provide clarity over the factors that may impinge on the attainment of that vision or aim; and
- 4) guide the department’s thinking and operations over the long term (i.e., contain a high-level work programme to achieve change over two years or more).

2.3 Limitations and acknowledgements

2.3.1 Double Counting

There are 199 GDS in operation, with this figure double counting those GDSs that are in operation across a range of departments. This means, for example, a strategy that is owned and used by three different departments counts three times in the total of 199.

2.3.2 Scope

The Institute acknowledges that GDSs are not the only instruments used by government to bring about change. Three that have been excluded from this research are discussed below.

- The Minister of Finance, through the Budget speech, highlights a set of priorities to help drive public expenditure and wider public policy. These are listed in *Working Paper 2021/13 – Government priorities of the New Zealand government from 2006–2021*. The government priorities fail to meet the second criteria that determines a GDS, in that it is not generated by a government department.
- Cabinet can issue strategy documents independent of government departments. An example of such an instrument is the Carbon Neutral Government Programme (CNGP).² The CNGP has been established to ‘show leadership to reduce [the government’s] own emissions in order to demonstrate what is possible to other sectors in the New Zealand economy’. The CNGP has been excluded from this research as it is an ‘all-of-government programme’ prepared in detail by Cabinet (rather than by one or a specific group of government departments). These types of strategy documents are rare. They are often issued as a Cabinet Minute and are proactively released. For example, although the minute was dated 30 November 2020, it was proactively released on 5 March 2021. Therefore, the CNGP fails to meet the first and second criteria that determines a GDS, in that it was not made publicly available once prepared and was not generated by a government department.
- A few instruments guide the goals and decision-making from outside of government. One prominent example is the Labour Government’s manifesto.³ The manifesto fails to meet the second criteria that determines a GDS, in that it is not generated by a government department.

In contrast to the three instruments above, the upcoming Emissions Reduction Plan (as set out in s 5ZG of the Climate Change Response (Zero Carbon) Amendment Act 2019), is likely to be a GDS as it is published by MfE (although it may be a joint GDS) and therefore meets all the four criteria (above).

2.3.3 Transparency and Accountability

The Institute believes that departments should aspire to a higher level of transparency over strategy development and implementation than Cabinet. This is because Cabinet will be voted out if they are not effective, but government officials have no direct cause-and-effect relationship with the public. Instead, departments are designated public funds (through the vote) to spend on effective public policy. If their public policy is not effective, there are currently very few checks and balances to ensure the approach and actions are measurable and progress is able to be reviewed. For these reasons, a higher level of transparency and accountability is required than at present. The GDS Index is the Institute’s solution to overcome this significant public policy failure.

2.3.4 Action Points

It is important to acknowledge that not all strategy documents require action points. This is because it is possible to separate ‘an approach’ (the strategy) from ‘a plan’ (the latter containing action points). However, given the climate emergency and in many cases the lack of reference to an upcoming plan, the Institute considers action points should be included. In practice, this could simply be a statement that the department will develop a plan (or set of action points) to achieve the strategy within a certain timeframe. From a public-good perspective, clearly as much information as possible on how the strategy will be implemented in the document is good practice, as it enables the public to understand, test, collaborate and review the intentions of the department and later their success in implementing the strategy. This also ensures an opportunity for future policy analysts, politicians and interested parties to learn the lessons of what has worked and what has not. For these reasons, the Institute assumes some form of high-level key action points should be included in a strategy document to illustrate the cause-and-effect relationship that is necessary to bring about change.

3.0 Analysis of mentions of climate change

3.1 Differences in mentions of climate change between the 2018 and 2020 GDS lists

This is an analysis of the 199 GDS documents that are in effect as at 31 December 2020, and how many of these mention climate change. This analysis makes up the outer tier of the wheel.

There was an increase in the uptake by government departments in terms of taking on board climate change challenges and action when implementing government department strategies. (In 2020, 31% [61 of 199] GDSs discuss climate change; in 2018 it was only 24% [36 out of 148].)

Figure 1: 2020 GDSs that discuss climate change [out of 199]

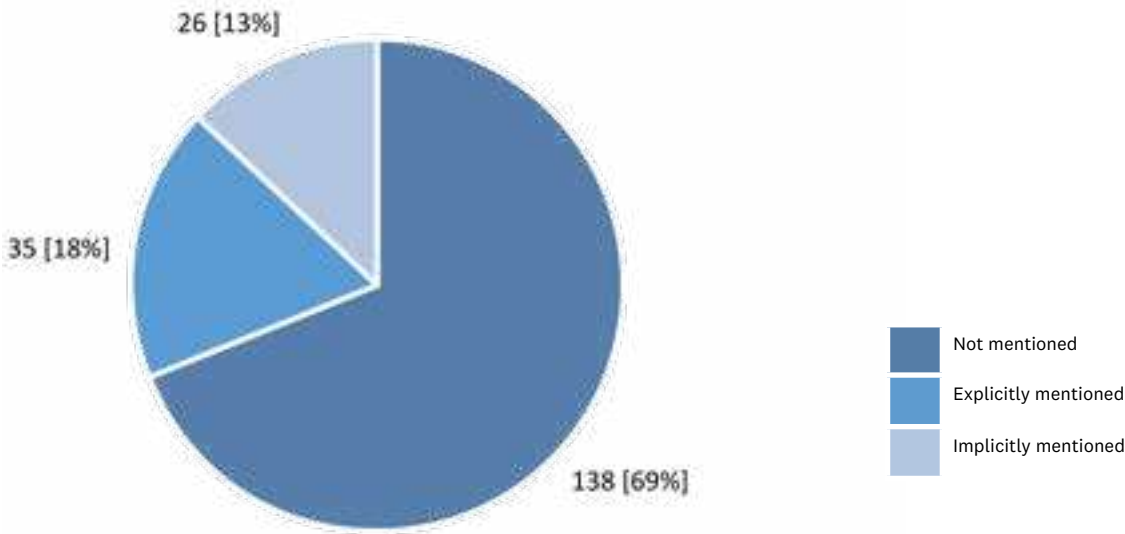
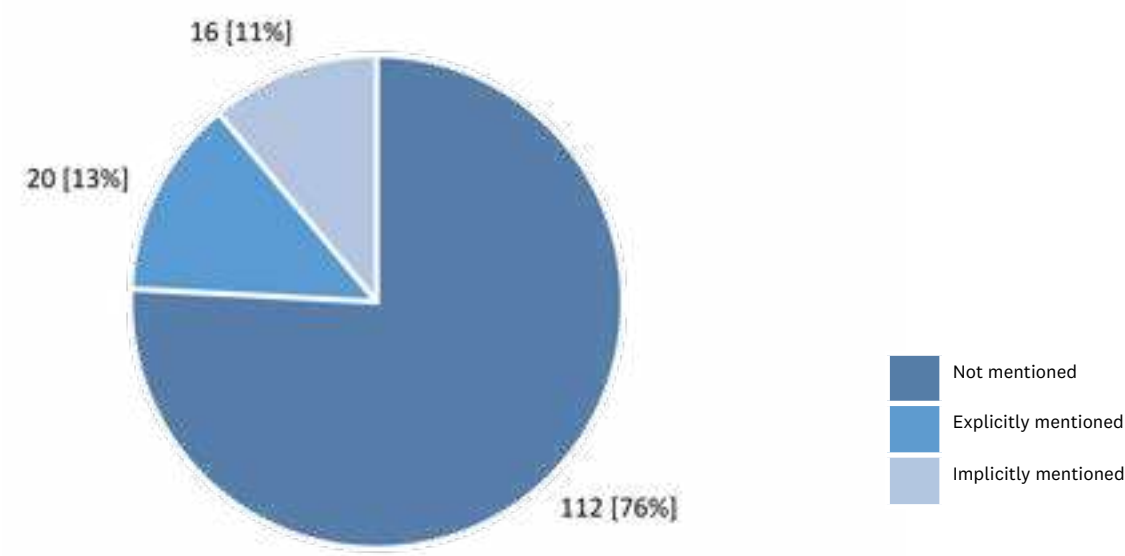


Figure 2: 2018 GDSs that discuss climate change [out of 148]



- 69% in 2020 did not mention climate change (76% in 2018).
- 18% in 2020 explicitly mentioned climate change (13% in 2018).
- 13% in 2020 implicitly mentioned climate change (11% in 2018).

3.2 Differences in number of government departments that mention climate change

An analysis of the 32 government departments was undertaken at the middle tier, with a focus on the number of departments that mention climate change in their GDSs. See Figures 3 and 4 below.

Note: a small number of departments do not currently have GDSs in operation as at 31 December (5 in 2020, 4 in 2018).

Figure 3: Government departments that mention climate change 2020 [out of 32]

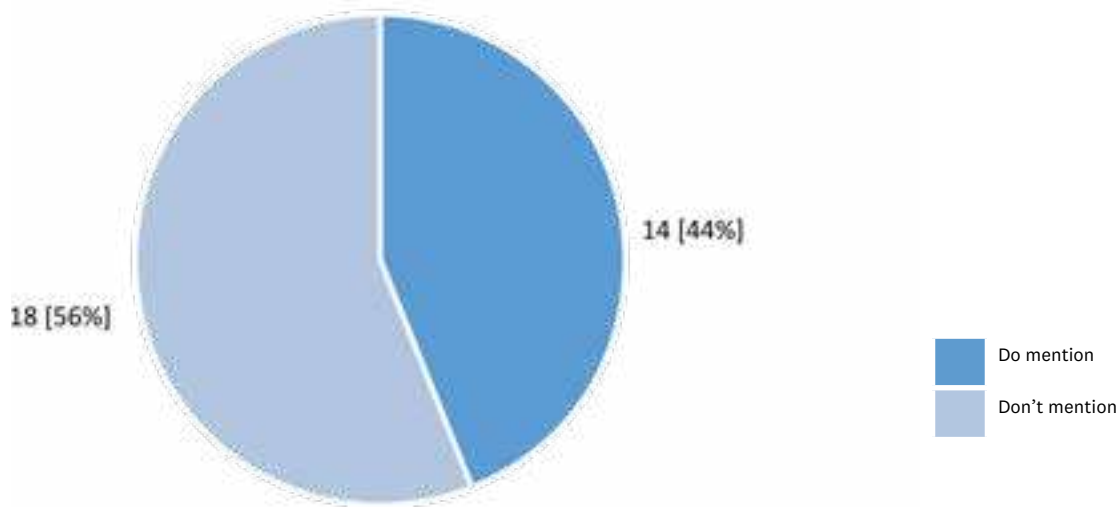
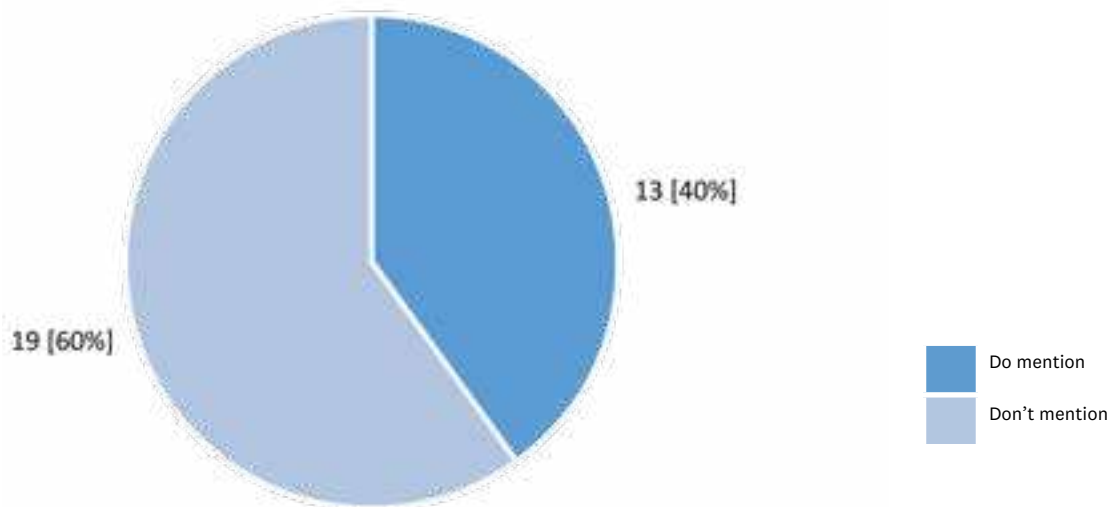


Figure 4: Government departments that mention climate change 2018 [out of 32]



- 14 departments in 2020 mention climate change in their GDSs, an increase of 1 (13 in 2018).
- As 5 departments do not publish any GDSs, this means the remaining 13 departments (who publish GDSs) never mention climate change.

This means, as at 31 December 2020, over half of New Zealand’s government departments do not mention climate change in publicly accessible GDSs [13] or do not publish GDSs at all [5].

3.3 Differences in the number of sectors that mention climate change

An analysis of the 10 government sectors was undertaken at the inside tier, with a focus on the number of departments within each sector and how many of their respective GDS documents refer to climate change.

Government sectors tie together the departments and their respective strategies. Looking at strategy documents and departments as derivatives of government sectors illustrates where there are high-level areas within government that need to consider addressing climate change within their strategic documents.

Figure 5: Number of reports that each government sector has that mention climate change in 2020 [61]

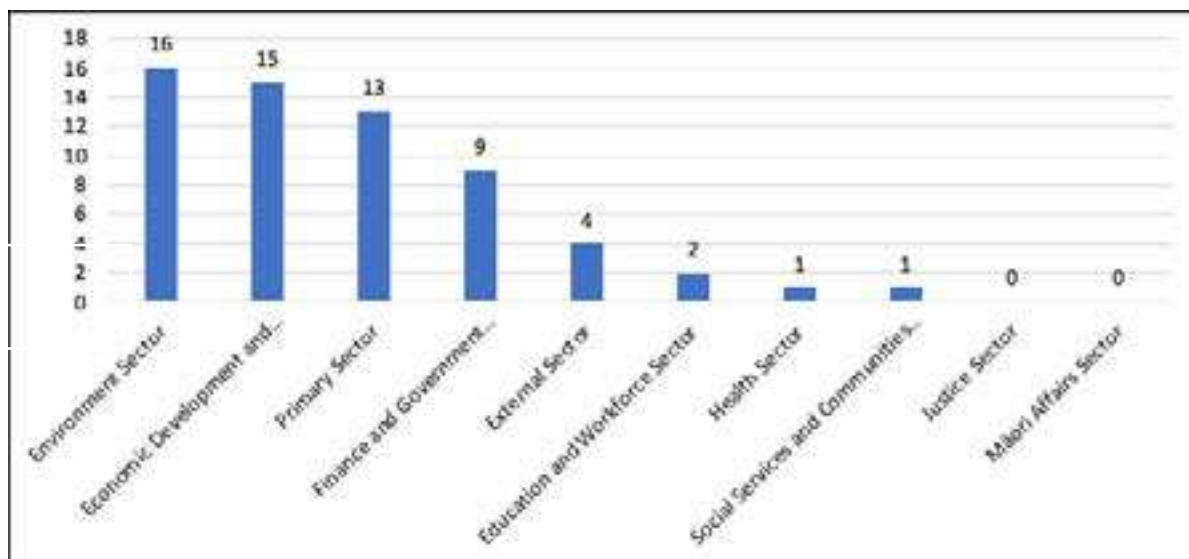
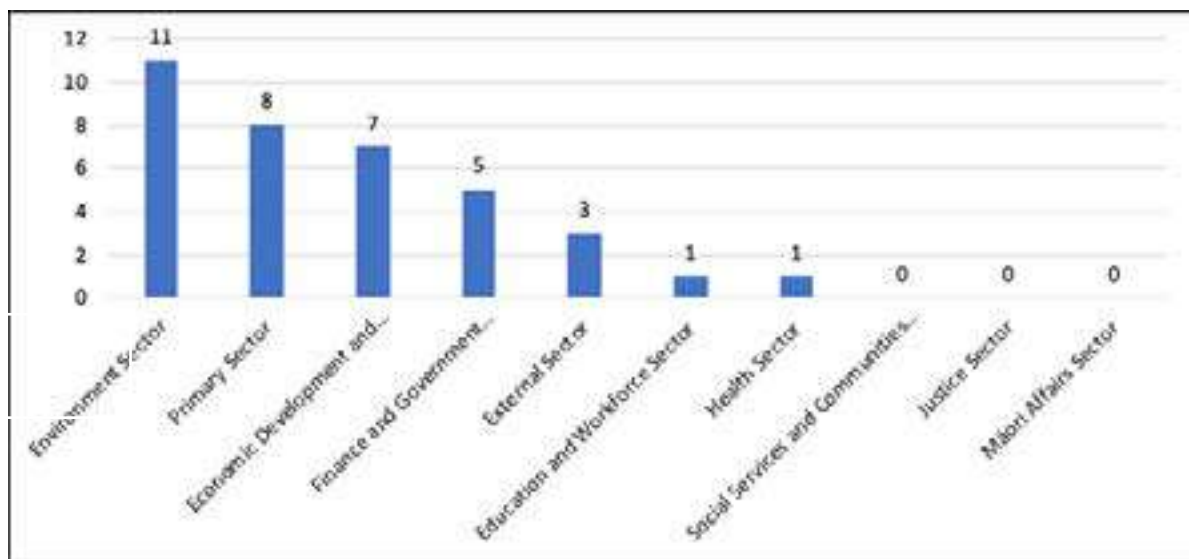


Figure 6: Number of reports that each government sector has that mention climate change in 2018 [36]



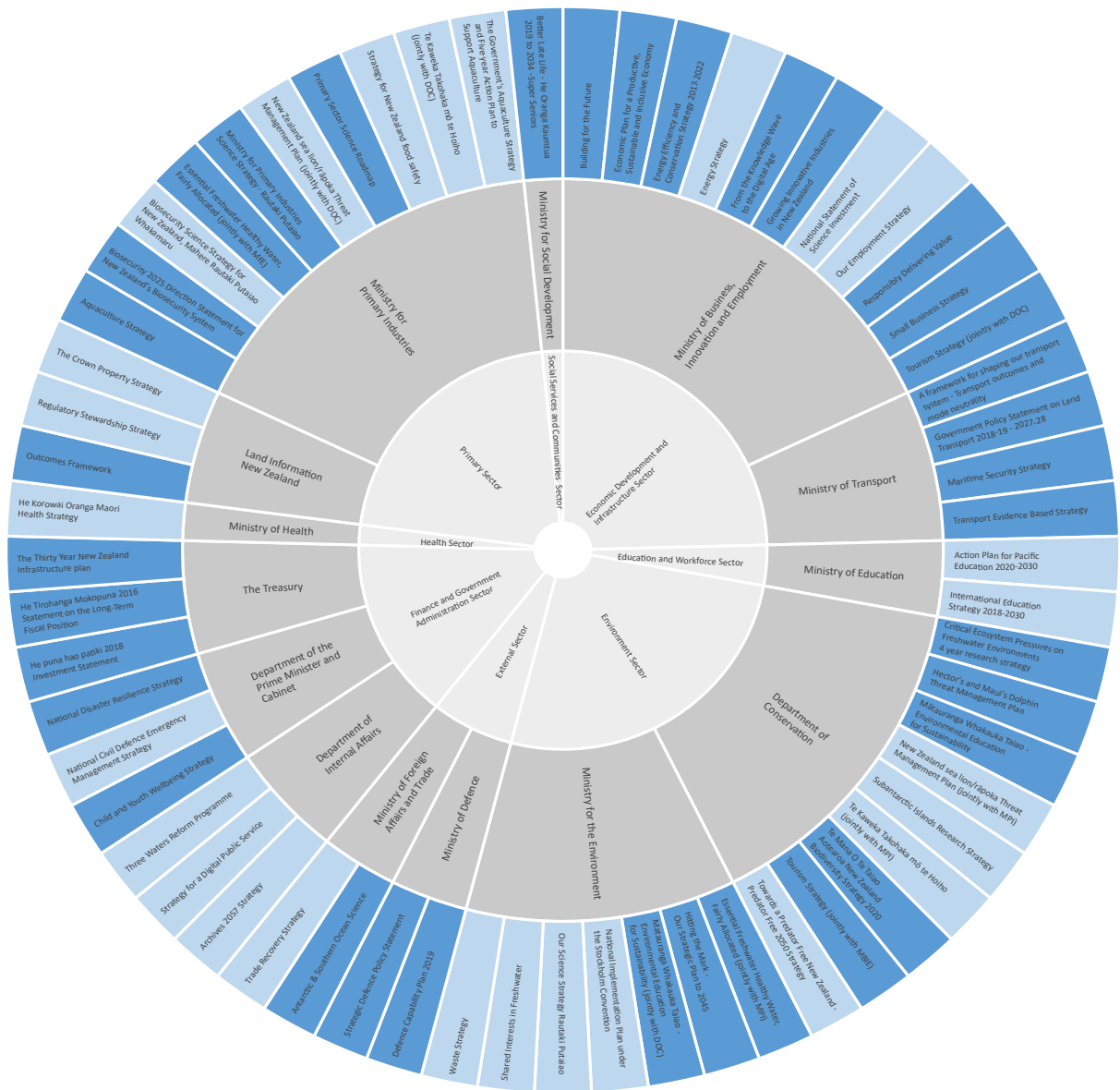
- Figures 5 and 6 show that the major improvement in sector reporting on climate change is being led by the Economic Development and Infrastructure Sector (15 in 2020, 7 in 2018), with 8 new GDSs mentioning climate change. Next is the Environment Sector (16 in 2020, 11 in 2018), with 5 new GDSs mentioning climate change.
- 8 out of 10 sectors in 2020 included some level of climate change discussion in their respective department's GDSs. In 2018, it was 7 out of the 10 sectors.
- In 2020, the sectors with the smallest mentions of strategy surrounding climate change were the Health Sector and the Social Services Sector (1 each).
- In 2020, neither the Justice Sector or Māori Affairs Sector have GDSs that mentioned climate change.

3.4 Differences between the 2018 and 2020 climate change strategy wheels

When looked at in totality, using our strategy wheels in Figures 7 and 8, the research results are easier to assess and understand. Although there has been an increase in the number of strategies that mention climate change (61 in 2020, 36 in 2018), the total percentage that mentions climate change is still much lower than expected (31% in 2020, 24% in 2018).

- In 2020, 61 GDSs mention climate change (either implicitly or explicitly). Of the 61, 56 [92%] were published after 2010.
- In 2018, 36 GDSs mention climate change (either implicitly or explicitly). Of the 36, 30 [83%] were published after 2010.

Figure 7: Climate Change Strategy Wheel 2020 – mentions [61]



Key:

	Explicitly mentions climate change	35/61 [57%]
	Implicitly mentions climate change	35/199 [18%]
	Explicitly mentions climate change	26/61 [43%]
	Implicitly mentions climate change	26/199 [13%]

Figure 8: Climate Change Strategy Wheel 2018⁴ – mentions [36]



Key:

	Explicitly mentions climate change	20/36 [56%]
	Implicitly mentions climate change	20/148 [13%]
	Explicitly mentions climate change	16/36 [44%]
	Implicitly mentions climate change	16/148 [11%]

4.0 Analysis of action points

4.1 Number of GDSs that contained action points the department is taking against climate change

The Institute then performed analysis to identify the amount of GDSs that contained at least one action point that the department has taken to minimise and/or prevent impacts arising from climate change. This led to the identification of 20 GDSs (see full list in Appendix 3).

Figure 9: Number of GDSs discussing climate change that have action points in 2020 [61]

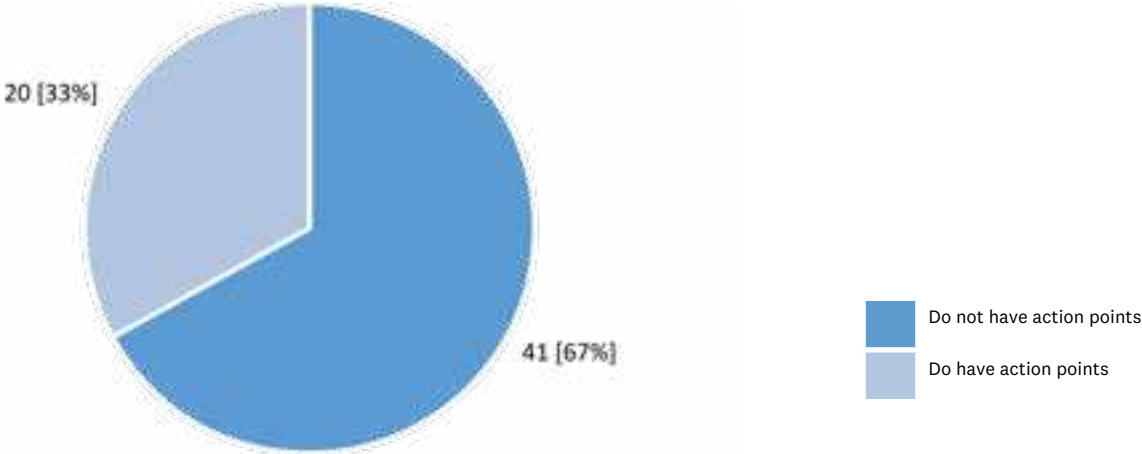
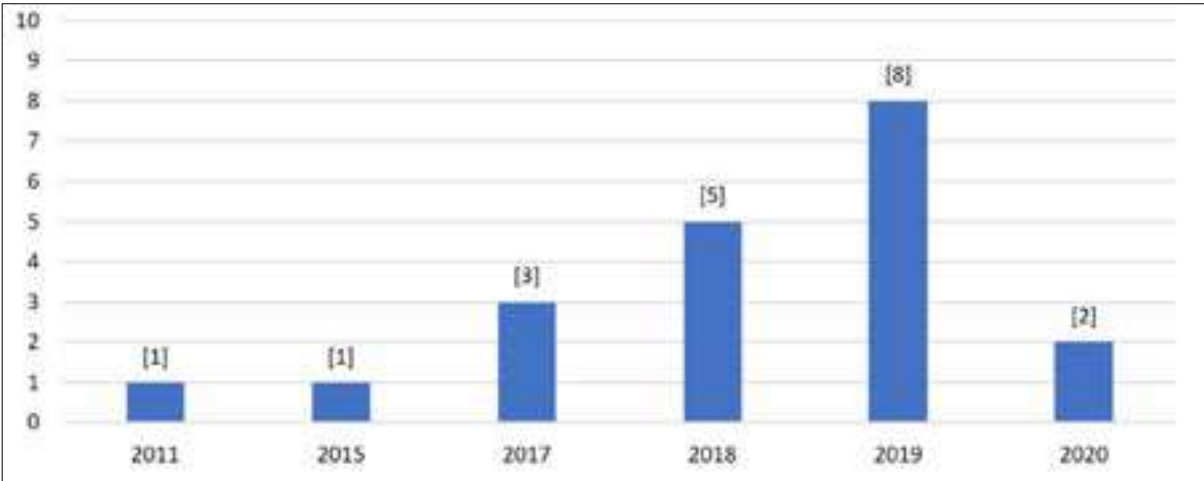


Figure 10: Number of GDSs discussing climate change that have action points in 2018 [36]



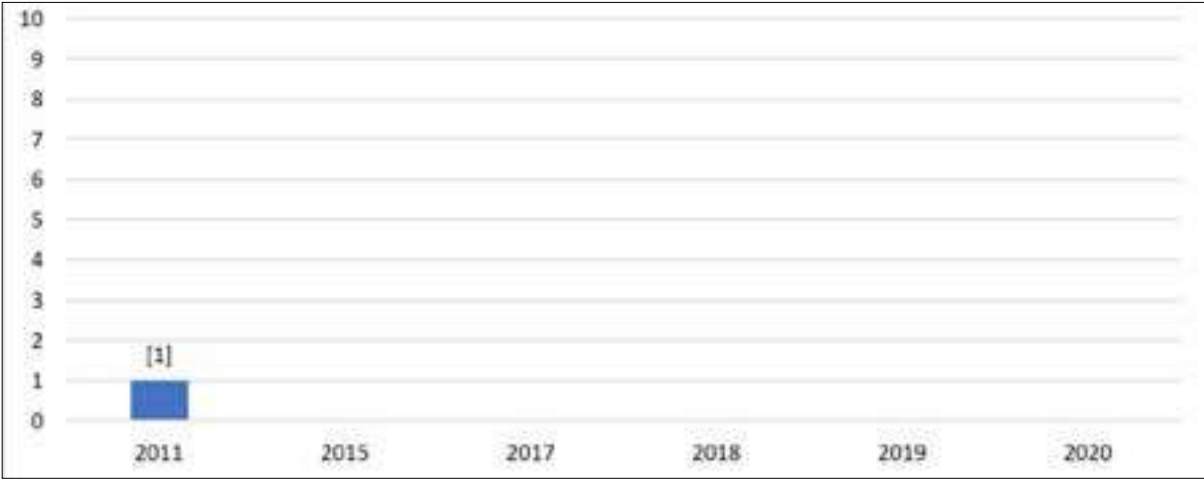
- The same percentage of GDSs in 2018 and 2020 had action points to minimise or prevent climate change (33% in 2020, 33% in 2018). Note: a retrospective review exercise was undertaken to explore whether there had been an increase in GDSs reporting action points.

Figure 11: Number of explicit GDSs in operation as at 31 December 2020 that have action points to tackle climate change – by publication date [20]



Note: See Appendix 3 for a detailed list.

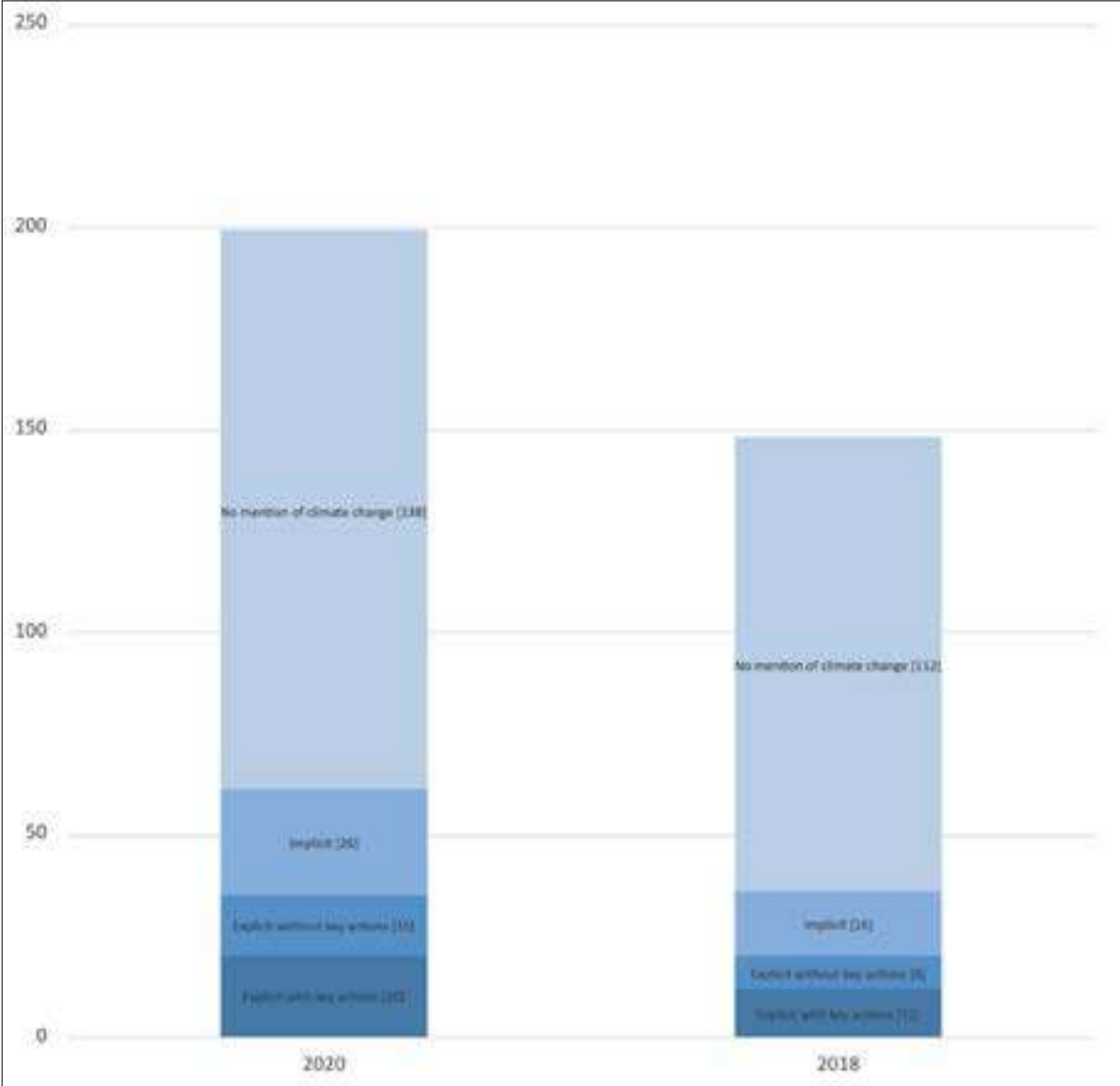
Figure 12: Number of archived explicit GDSs between 1 January 2019 and 31 December 2020 that have action points to tackle climate change – by publication date [1]



Note: The International Development Policy Statement Supporting Sustainable Development (recorded in 2011 above) was archived in November 2019.

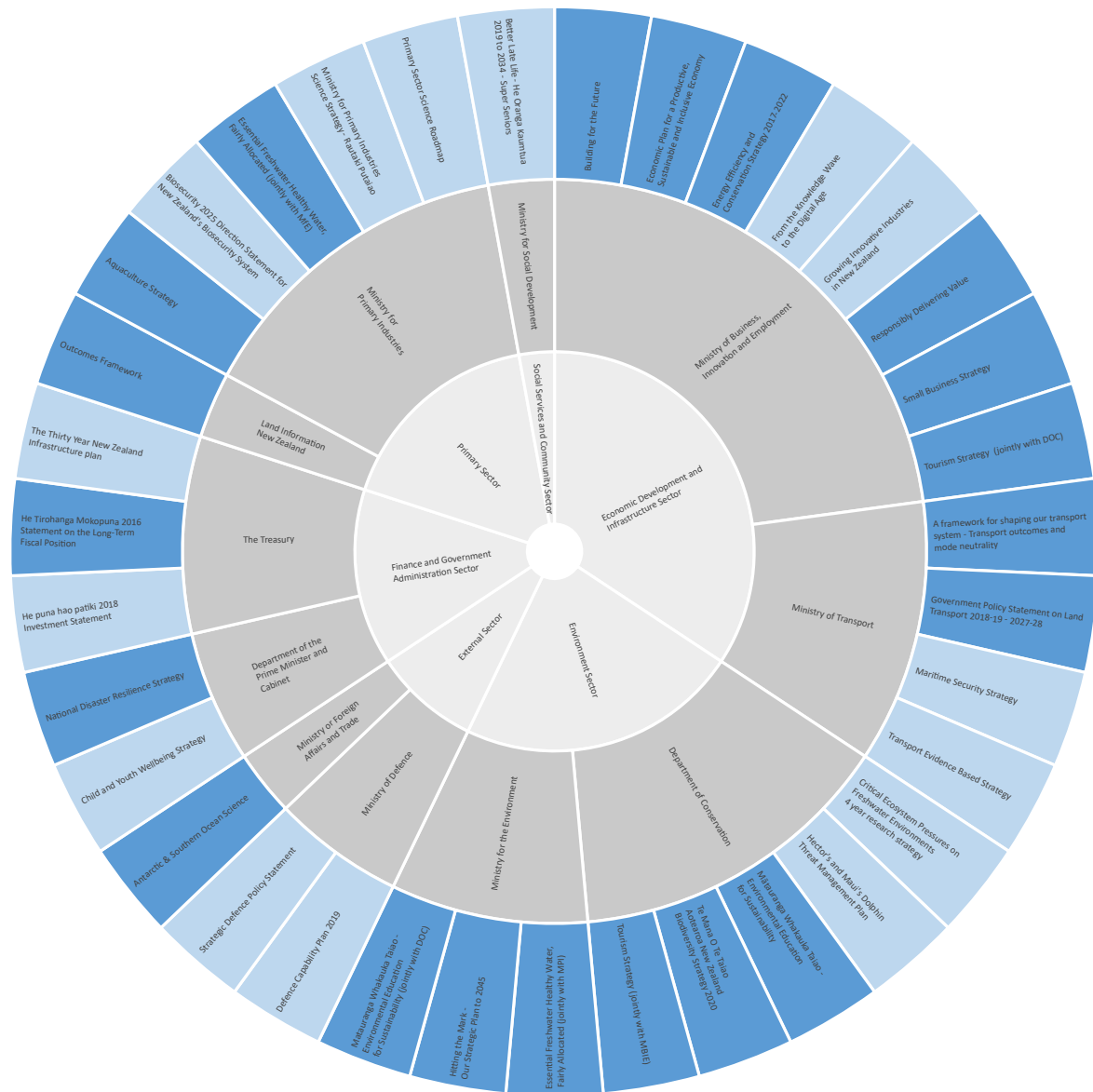
- The small amount of strategy development in 2020 (2) may be explained to some extent by COVID-19, but given the legislative goals and the subsequent climate emergency, this low number is a concern.

Figure 13: Proportion of GDSs that contain actions taken against climate change



- Out of the total 199 reports in action as at 31 December 2021, only 21 have key actions to prevent or mitigate the impacts of climate change (10% in 2020, 8% in 2018).

Figure 14: Climate Change Explicit Strategy Wheel 2020 – by action points [35]



Key:

	Explicit mentions with action points	20/35 [57%]
	Explicit mentions without action points	20/199 [10%]
	Explicit mentions without action points	15/35 [43%]
	Explicit mentions without action points	15/199 [8%]

5.0 Discussion

5.1 Observations

We note that, over all, there has been an increase in the mentions of climate change.

Mentions of climate change with respect to GDSs

- At 1 January 2018, there were 148 GDSs in operation. At 31 December 2020, there were 199 in operation – an increase of 51, or 26% [51/199]. This is higher than expected and means the tool of a GDS is increasingly being used by government departments to bring about change.
- The number of explicit mentions of climate change increased from 2018 to 2020 by 15 GDSs – an increase of 7.5% [15/199]. This is lower than expected given a light discussion on the impacts of climate change has been interpreted as explicit.
- The number of mentions (explicit and implicit) of climate change in GDSs increased from 2018 to 2020 by 25 GDSs – an increase of 12.6% [25/199]. This is lower than expected given a light discussion on the impacts of climate change has been interpreted as explicit and a minimal reference to climate change has been interpreted as implicit.
- The difference of 25 new reports that mention climate change (61–36) is largely due to the Economic Development and Infrastructure Sector (15 in 2020, 7 in 2018), who published 8 new GDSs that mention climate change. See Figures 5 and 6.
- The split between explicit and implicit mentions remains the same (57/43 in 2020 and 56/44 in 2018), which indicates that there hasn't been a significant increase in the quality of the discussion around climate change.
- Of the 77 new GDSs published between 1 January 2019 and 31 December 2020, only 30 of the 77 (39%) mention climate change.

Mentions of climate change with respect to departments

- Climate change has been mentioned in one additional department since 2018: Ministry of Social Development (14 in 2020, 13 in 2018).

Mentions of climate change with respect to sectors

- Climate change has been mentioned in one additional sector since 2018: Social Services and Communities Sector (8 in 2020, 7 in 2018).

Action points to combat climate change within GDSs

- There is no significant increase in reports containing action points to prevent climate change (33% in 2020, 33% in 2018).
- Out of the total 199 reports in action as at 31 December 2021, only 20 have action points to prevent or mitigate the impacts of climate change (10% in 2020, 8% in 2018).

5.2 Possible solutions

Given the context of a zero target in the Climate Change Response Act 2002 (MfE 2019), the announcement of a climate emergency (Shaw 2020) and the December 2020 pledge by New Zealand government to be carbon-neutral by 2025 (Ardern et al. 2020), the current state of GDSs strategy development is not going to be sufficient to deliver on those targets and pledges.

5.2.1 Obstacles

The research indicates there are a number of obstacles that need to be overcome:

- **Reshaping existing tools to help with the climate emergency is urgently required**
Climate change is complex (as are other issues like poverty), but we need to find collaborative ways to explore solutions and trade-offs in a safe and productive manner. The Institute considers GDSs are a useful tool for making this kind of discussion possible, chronicling goals and ideas, and determining how to make challenging decisions and positive change.
- **Stewardship over government strategy is a missing component**
The public service needs to take stewardship over GDS documents. In reality the GDS Index is not the job of the Institute but that of the public service. Even the requirement to report on all operational GDSs in a department's annual report would be a step forward. This would help build the relationship between TCFD and strategy.
- **Lack of clarity over who is responsible for implementing the GDS**
Being clear over who is going to complete a task/action point is good management practice. This is particularly necessary in the public service, where public funds are being used for the public good.
- **A failure to quantify an action point**
If a department does not specify an action point, such as who is accountable, for what, in what time frame etc. it is unlikely progress will be made. The 'means' to an end, it is a critical component of any strategy.
- **Lack of clarity over who was consulted and who is the audience**
If it is unclear who is going to read and act on the climate change action points, success is further reduced. In addition, being clear who was involved/consulted in the strategy is another way of building relationships with collaborators.
- **Reviewing progress is not part of the culture**
Reviews of strategies should be commonplace, otherwise lessons will not be learned and strategy will not be tweaked in response to new information.

5.2.2 Possible solutions

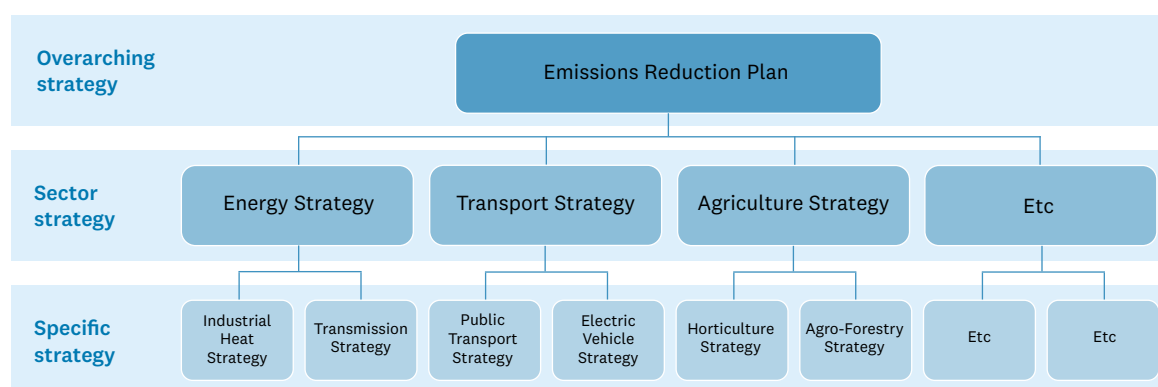
Given the climate change emergency, the Institute has identified the following ways climate change strategy could be improved.

Using Government Department Strategies (GDSs)

- Require CEOs to review all existing operational GDSs by department staff to ensure climate change is taken into account – and republish in, say, the next 12 months.
- Require government department/s to publish an emissions reduction GDS (or shared GDS) as allowed for under s 5ZG (3) (d) of the Climate Change Response (Zero Carbon) Amendment Act 2019. Although the CNGP (mentioned in Section 2.3.1 above) proposes changes to the internal footprint of a government department by 2025, there is no equivalent instruction that places the onus on government departments to drive improvements in their wider circle of influence (i.e. beyond the footprint). These documents would act as a bridge between policy and practice in the private sector. There are two options:
 - a) Require all government departments to publish their own GDS on emissions (by, say, 1 January 2022).
 - b) Require a select few government departments to publish their own GDS on emissions (by, say, 1 January 2022). This would mean identifying those government departments whose policies directly and materially impact carbon emissions.

- Require all heads of departments to write a comprehensive new strategy document describing how they are embedding climate change considerations and actions across all their roles and functions. There are clearly two aspects: what they are doing in terms of their own footprint (internal) and what they are doing to propel New Zealand forward (external). This idea would ensure an integrated approach is taken, meaning both the footprint and the wider area of influence would be seen together.
- Require all new GDSs to consider climate change impacts and emission reductions (from mid-2021). Notably, in the last two years only 39% of new GDSs mentioned climate change. This solution would ensure that from mid-2021 all new GDSs must consider and mention climate change.
- Require all subsequent climate-adjacent strategy documents to sit within a strategic hierarchy. If the Emissions Reduction Plan (ERP) is to become the overarching strategic centrepiece of a cross-sectoral move to a low-emissions economy, all subsequent climate-adjacent sector (energy, transport, agriculture etc.) strategy documents should be nested within the ERP's framework. Sub-strategies under these sector strategies, covering specific activities, should then sit within the same system, informed by the ERP. In this way, the activities identified within specific strategies will directly link back to the high level outcomes described in the ERP. If this process is followed and enforced, over time the governments entire strategic landscape in relevant sectors should pivot towards the current ERP, and subsequent updates. This process will create the greatest likelihood of the objectives within the ERP being met across the whole of the economy, while meeting societal and environmental objectives. This approach is illustrated in Figure 15.

Figure 15: Hierarchy of strategies



Using other instruments

- Cabinet introduces new laws (e.g. the Climate Change Response (Zero Carbon) Amendment Act 2019) requiring regular GDSs on climate change from government departments.
- Cabinet agrees a new Cabinet Minute requiring each government department to actively pursue a policy directive ‘beyond their footprint’ (but along the lines of the CNGP [CAB-20-MIN-0491]) setting out how they will actively influence public policies through their work.
- The ‘long-term insights briefings’ is a new instrument that forms part of the new Public Service Act 2020.⁵ Although the content must be ‘independent’ of ministers, it may be possible for MfE (and the Crown) to indicate an interest in each head of department commenting on climate change, given the declaration of an emergency and how the CEO’s see climate ‘trends, risks, and opportunities’ impacting New Zealand in the long term.
- The Climate Change Commission suggest in their Final Report, as a way to integrate and align the public service, that they annually produce a report on what each department has done in the last year and what has worked and what has not.

All of the above are tentative suggestions for what could be done. There will be other ideas that might also be worth considering. The list above is a starting point for further discussion and deliberation.

Appendix 1: Explicit climate change strategies

Sector	Department	Name of document	Number	Excerpt copied from GDS
Economic Development and Infrastructure Sector	Ministry of Business, Innovation and Employment	Energy Efficiency and Conservation Strategy 2017-2022	GDS12	<p>This is particularly important in New Zealand’s export-led economy for two reasons. First, we know productive firms are more likely to become exporters. Secondly, as climate change issues become more important, our export markets may start to focus more on the embodied carbon in imported goods, and perhaps even services.</p> <p>In order to make the most of these opportunities and avoid falling behind our competitors, we need to continue to develop a productive economy where all regions and people have the opportunity to grow and prosper – at the same time as reducing our emissions.</p> <p>New Zealand’s emissions are mainly from the agriculture and energy sectors (including transport). The energy sector makes up nearly 40 per cent of gross emissions. Based on current technology and without reducing existing economic activity, New Zealand’s greatest potential to reduce emissions lies in our process heat and transport sectors – both of which are significant emitters.</p> <p>This Strategy prioritises action in the process heat and transport sectors, as well as electricity generation and consumption because New Zealand stands to benefit greatly from making the most of its clean electricity resources. (p. 4)</p>
		Tourism Strategy (Shared with DOC)	GDS14	<p>This outcome signals the importance of restoring and protecting the quality of the natural environment, culture and historic heritage that international visitors come here to experience, and New Zealanders want to protect. This means focusing on tourism as part of the shift to a low emissions and climate resilient economy, the need to protect our natural environment from biosecurity and others risks, and how tourism can contribute to conservation and manage its impacts on public conservation lands. (p. 13)</p>
		From the Knowledge Wave to the Digital Age	GDS16	<p>Climate change, environmental degradation and the distribution of wealth have reinforced the need to shift to a more strategic approach to industry policy that includes a focus on long-term sustainable development and inclusivity. Collectively we must ensure that innovation, trade, investment and skills development support the transformation of key sectors and the development of new sectors. (p. 27)</p>

Action points	McGuinness Institute Comments
<ul style="list-style-type: none"> Develop a productive economy that will provide opportunity for growth while also reducing emissions. 	
<ul style="list-style-type: none"> Deepen understanding of the implications of climate change on the tourism industry. Contribute to conservation and manage impact on public conservation lands. 	
N/A	

Sector	Department	Name of document	Number	Excerpt copied from GDS
Economic Development and Infrastructure Sector (cont.)	Ministry of Business, Innovation and Employment (cont.)	Small Business Strategy	GDS17	<p>A focus on sustainability Climate change and environmental sustainability has become a defining feature of this age. As New Zealand transitions towards a low carbon economy, many small businesses are not geared up for the changes that this will bring to their operations. The Small Business Capability and Ambition Programme would provide a means for upskilling and training small businesses specifically on sustainability.</p> <p>Guidance on sustainability would include information for key sectors such as primary industries, tourism, hospitality, construction and professional services. Working in partnership with existing programmes, content could include:</p> <ul style="list-style-type: none"> • guidance on sustainability performance and reporting frameworks and tools • practice tools for reducing the impact on natural systems • resource efficiency using circular economy principles • climate change including carbon accounting, adaptation, innovative low carbon solutions and business models • social purpose and enterprise. (p. 22)
		Economic Plan for a Productive, Sustainable and Inclusive Economy	GDS19	<p>This Government is committed to making a just transition to a low-emissions economy, to lead by example and minimise New Zealand's contribution to climate change.</p> <p>Our land, forests, fresh water, marine environment and indigenous biodiversity are the foundations of our society and economy and hold a special place in the hearts and minds of New Zealanders. They are at the heart of our success, livelihoods and wellbeing as New Zealanders.</p> <p>Our focus is on how we support our people, places and businesses to use our resources more sustainably through the smart use of technology, education, regulation and investment.</p> <p>We must work together to positively change how we live, work, do business and play. Progressively reversing existing environmental damage and protecting nature for ourselves and future generations must be part of our plan for a more sustainable economy. (p. 3)</p>
		Responsibly Delivering Value	GDS20	<p>We need to take action against the existential threat of climate change and the Government has taken the step to phase out oil and gas exploration carefully over time so there is a just transition.</p> <p>Looking towards the future, the kinds of resources we will need will be considerably different from today. We will require significantly less fossil fuels such as coal and petroleum, and will increasingly meet our energy needs through renewable energy. As we and other countries transition to a low emissions economy, clean-tech minerals such as lithium and cobalt will become increasingly important as a key input into clean technology, such as batteries. There may be opportunities for New Zealand to meet this domestic and global demand for clean-tech minerals and lead the way in climate smart mining techniques which focus on sustainable and environmentally responsible mining operations. (p. 25)</p>

Action points	McGuinness Institute Comments
<ul style="list-style-type: none"> • The Small Business Capability and Ambition Programme aims to upskill around sustainability. New content could include: <ul style="list-style-type: none"> – guidance on sustainability performance and reporting frameworks and tools – practice tools for reducing the impact on natural systems – resource efficiency using circular economy principles – climate change including carbon accounting, adaptation, innovative low carbon solutions and business models – social purpose and enterprise. 	
<ul style="list-style-type: none"> • Use technology, education, regulation and investment to support people and businesses to reverse existing environmental damage. 	
<ul style="list-style-type: none"> • Use smart mining techniques to focus on sustainability and environmentally responsible mining operations. 	

Sector	Department	Name of document	Number	Excerpt copied from GDS
Economic Development and Infrastructure Sector (cont.)	Ministry of Business, Innovation and Employment (cont.)	Growing Innovative Industries in New Zealand	GDS21	<p>Climate change is changing growing conditions for the food and fibre sector and adaptation is required.</p> <p>How the food and fibre sector interacts with the environment is a major driver for change. The changing climate is already resulting in more frequent and severe extreme weather events, as well as rising sea levels and more destructive storm surge events. Over the medium- to long-term, changing rainfall, temperature and drought patterns are changing growing characteristics in some regions. These changes also increase the risk of biosecurity incursions and have flow-on effects onto biodiversity outcomes. All of this requires an agritech-driven adaptive response to increase the resilience of our farming and processing systems. (p. 15)</p>
		Building for the Future	GDS22	<p>MBIE will help the building industry and consumers protect and support the environment and encourage environmentally sustainable behaviors by all system participants. This includes regulatory measures and incentives to move towards a low emissions built environment and make buildings resilient in a changing climate.</p> <p>Our strategic priorities</p> <ul style="list-style-type: none"> • Implement a climate change plan to increase energy efficiency, minimise embodied carbon buildings from building materials, and make buildings more resistant to future climate conditions. • Research and implement policy changes to ensure that buildings have a long lifetime, to reduce environmental impacts and support the efficient use of resources. • Help advance the shift to a circular economy based on energy conservation and reuse of materials. • Develop a sustainable whole-of-life approach to buildings and building products. • Review and provide advice on how buildings should change to support sustainable behavior and use by occupants and users. (p. 16)
	Ministry of Transport	A framework for shaping our transport system - Transport outcomes and mode neutrality	GDS04	<p>The transport sector has a particularly important role to play in responding to climate change. New Zealand is committed to reducing greenhouse gas emissions by 30 percent below 2005 levels by 2030 under the Paris Agreement on Climate Change. For New Zealand as a whole this will be met through a combination of emissions reductions, planting more trees to remove carbon dioxide, and purchasing credits in international carbon markets. Government is also setting a target for New Zealand to be net carbon neutral by 2050.</p> <p>18 percent of New Zealand's domestic emissions currently come from transport, and emissions have been on an upwards path for the last two decades. Emissions increased 68 percent from 1990 to 2015 (the most recent year for data). The vast majority (90 percent) of these emissions come from road transport. Domestic aviation is the next highest source, producing six percent of transport emissions.</p> <p>The transport system now needs to shift to a low-carbon path, with ongoing emissions reductions. Fortunately there are many opportunities to reduce and avoid transport emissions while also benefiting health, access, and economic prosperity. While most emissions reductions need to occur in the land transport sector, New Zealand also needs to participate in international initiatives to reduce/offset international air and maritime emissions. (p. 6)</p>

Action points	McGuinness Institute Comments
N/A	
<ul style="list-style-type: none"> • Implement a climate change plan to increase energy efficiency, minimise embodied carbon buildings from building materials, and make buildings more resistant to future climate conditions. • Research and implement policy changes to ensure that buildings have a long lifetime, to reduce environmental impacts and support the efficient use of resources. • Help advance the shift to a circular economy based on energy conservation and reuse of materials. • Develop a sustainable whole-of-life approach to buildings and building products. • Review and provide advice on how buildings should change to support sustainable behavior and use by occupants and users. 	
<ul style="list-style-type: none"> • Participate in international initiatives to reduce or offset international air and maritime emissions. 	

Sector	Department	Name of document	Number	Excerpt copied from GDS
Economic Development and Infrastructure Sector (cont.)	Ministry of Transport (cont.)	Government Policy Statement on Land Transport 2018-19-2027-28	GDS05	<p>The Government will work to reduce greenhouse gas and harmful pollutant emissions from transport and improve public health outcomes by substantially increasing the use of lower emission modes, such as walking and cycling, providing frequent and affordable public transport, promoting integrated land use and transport planning, and supporting rail and sea freight. Increasing walking and cycling not only reduces emissions but also has positive public health benefits through reduced heart disease, obesity and the incidence of diabetes.</p> <p>The Government will also encourage uptake of lower emission vehicles, including electric cars, buses, trains, bikes, trucks and other commercial vehicles and low- emission fuels like bio-fuel. The Government will also encourage efficient network and speed management, and participate in international negotiations to reduce the impact of international air and maritime emissions. Environment Objective: A land transport system that reduces greenhouse gas emissions, as well as adverse effects on the local environment and public health.</p> <p>Land transport can have significant effects on the environment. These can be immediate local effects (such as effects on the quality of air, water, soil, or the visual and acoustic environment) through to nationwide effects (on public health) and global effects (climate change). Enabling the transport sector to support better environmental outcomes involves minimising the adverse effects of transport.</p> <p>There are a range of investment and non-investment initiatives that can be used to address the environmental effects of transport.</p> <p>These include:</p> <ul style="list-style-type: none"> investment in infrastructure and services – for example, road design to mitigate run-off into waterways, measures to reduce motorised traffic volumes on suburban streets, encouragement of the uptake of electric vehicles, increased public transport (including rapid transit) services, and promotion of active modes (such as new cycleways) and shared mobility investment in measures to change people’s behaviour and optimise the system’s efficiency, for example travel demand management initiatives and technologies to provide people with choices about how to access and move easily between modes standards or consent conditions set through the Resource Management Act 1991 and other environmental legislation, which direct the amount and type of environmental mitigation and monitoring needed on a project or activity basis other regulations, such as vehicle fuel efficiency, fuel type and composition, and emissions standards information provision, such as informing consumers about the fuel efficiency and operating costs of different vehicles procurement related measures, for example choice of materials for use in infrastructure based on whole-of- life performance. (p. 20-21)

Action points	McGuinness Institute Comments
<ul style="list-style-type: none">• Increase lower emission modes of transport, such as walking or cycling.• Provide frequent and affordable public transport.• Encourage lower emission vehicles and bio-fuels.• Participate in international negotiations to reduce the impact of international air and maritime emissions.	

Sector	Department	Name of document	Number	Excerpt copied from GDS
Economic Development and Infrastructure Sector (cont.)	Ministry of Transport (cont.)	Transport Evidence Based Strategy	GDS08	<p>CONTRIBUTING TO THE GOVERNMENT'S OVERALL PRIORITY OUTCOMES</p> <p>Government's overall priority outcomes are grouped into three broad themes</p> <ul style="list-style-type: none"> Build a productive, sustainable and inclusive economy through regional economic development, addressing climate change and continued economic growth and shared prosperity, as well as the need to support innovation in the economy (p. 10) <p>FUTURE CHALLENGES FACING THE TRANSPORT SECTOR</p> <p>We need to ensure there is a good evidence base to respond to changes in economic, social, cultural and environmental conditions and help answer the following:</p> <ul style="list-style-type: none"> What are the future technologies that could change the way the transport system operates, and what impact (including unintended consequences) might they have? How will increased spatial changes in population and changes in demographics affect travel patterns and demand for transport services? What climate change mitigation efforts are required and by when? How will the transport system transition to net zero carbon emissions? What are the anticipated impacts of climate change on the transport system? What adaptation solutions can be best used to minimise these impacts? (p. 14)
		Maritime Security Strategy	GDS09	<p>The impact of climate change: Environmental changes are having a significant impact on the maritime environment. Climate change is the biggest driver of changes to the maritime environment stemming from rising temperatures, rising sea levels and changes to hydrological (rainfall) cycles. The Strategic Defence Policy Statement 2018 notes that the impacts of climate change are already being felt in New Zealand, but are most acutely affecting the Pacific and the broader developing world – places comparatively less equipped to handle these changes.</p> <p>Climate change and in particular, sea-level rise is presenting challenges to the stability of maritime zones, based on UNCLOS rules. As sea levels rise there is a risk that basepoints and features from which maritime zones (e.g. the EEZ) are measured will shift or be inundated. Under current UNCLOS rules, this could mean coastal states' (particularly low-lying island states) maritime zones will shrink or shift. Climate change will also complicate the physical operating environment, for example, creating more challenging ice conditions in parts of the Southern Ocean, and more variable sea states and levels in the littoral zone. Climate change is increasing the demand for New Zealand support to humanitarian assistance and disaster response as the number and severity of extreme weather events increases. Climate migration in the Pacific region has begun on a small scale, mostly internal, but is forecast to increase. These complex disrupters will place added operational pressures on maritime safety and security capabilities.(p. 10)</p>

Action points	McGuinness Institute Comments
N/A	
N/A	

Sector	Department	Name of document	Number	Excerpt copied from GDS
Environment Sector	Department of Conservation	Hector's and Māui Dolphin Threat Management Plan	GDS02	<p>A study investigating the potential impacts of climate change on migratory species (including marine mammals) identified a number of possible future effects. The study concluded that the greatest threat to marine mammals probably comes from changes in their food resources as a result of climate change.</p> <p>Other potential impacts include:</p> <ul style="list-style-type: none"> • Direct effects of changes in temperature include shifts in species ranges – some ranges may expand and some may contract, but species with restricted ranges may be particularly vulnerable. • Indirect effects of changes in temperature include prey availability affecting the distribution, abundance and migration, community structure, susceptibility to disease and contaminants, reproductive success, and ultimately, survival of marine mammal species. • Changes in the range and abundance of competitors and predators will also affect marine mammals to varying degrees depending on the species and location. • The construction of protective measures for coastal habitats against rising sea levels could degrade habitat, effect prey availability, cause direct mortality and create obstructions to migration. • Changes in ocean currents, upwellings and fronts could affect the distribution of marine mammals either directly if the limits to their range are defined by the changes between two water masses, or indirectly as a result of changes in the distribution and occurrence of prey associated with currents, upwellings and fronts. • The potential effects and impacts of changes in salinity, pH and CO₂ on marine mammals are not fully understood and require further research. • Changes in rainfall patterns and increased run-off, as well as changes in temperature, salinity, pH and CO₂, could potentially increase toxic algal blooms. (p. 30)
		Mātauranga Whakauka Taiao - Environmental Education for Sustainability	GDS05	<p>The first step will be to identify a targeted set of programmes where connections can be made with EEFS. Predator Free 2050, freshwater improvement initiatives, the National Science Challenges, Primary Growth Partnerships, climate change initiatives, threatened species programmes, and government environmental funds, such as Curious Minds and the Community Environment Fund, are all examples of programmes that can support education about the environment and actions to support sustainability. (p. 17)</p>
		Tourism Strategy	GDS08	<p>This outcome signals the importance of restoring and protecting the quality of the natural environment, culture and historic heritage that international visitors come here to experience, and New Zealanders want to protect. This means focusing on tourism as part of the shift to a low emissions and climate resilient economy, the need to protect our natural environment from biosecurity and others risks, and how tourism can contribute to conservation and manage its impacts on public conservation lands. (p. 13)</p>

Action points	McGuinness Institute Comments
N/A	
<ul style="list-style-type: none"> • Use programmes such as monetary funds and initiatives to support better education around the environment and supporting sustainability efforts. 	
<ul style="list-style-type: none"> • Gain better understanding of the implications of climate change on the tourism industry. • Manage impact on public conservation lands. 	

Sector	Department	Name of document	Number	Excerpt copied from GDS
Environment Sector (cont.)	Department of Conservation (cont.)	Te Mana o te Taiao Aotearoa New Zealand Biodiversity Strategy 2020	GDS09	<p>3.2.2 Climate change</p> <ul style="list-style-type: none"> We don't yet know what many of the ongoing effects of climate change on biodiversity will be, but we do know that they are likely to be significant. Many ecosystems are already being adversely impacted, and some species and ecosystems will be more vulnerable to climate change than others. Sea level rise, ocean acidification and increased sea temperatures are among the largest threats, as they will compromise the extent and health of coastal and marine ecosystems and species. Hydrological alteration (e.g. an increased prevalence of low flows, droughts and flooding) and altered water temperatures will affect freshwater ecosystems. Introduced invasive animals, plants and pathogens may become more widespread on land, and storms, droughts and floods are likely to increase in frequency. Actions we take to respond to and mitigate the effects of climate change may also have impacts on biodiversity. Examples include the construction of infrastructure such as coastal defenses and accessing resources (minerals and metals) that are needed to transition to a low-emissions economy. (p. 19)
		Critical Ecosystem Pressures on Freshwater Environments 4 year research strategy	GDS10	It is recognised that the abiotic and biotic pressures that affect freshwater ecosystems often interact and/or have cumulative effects, and that scientific knowledge on how these pressures interact is limited. Whilst not a primary focus of this programme, multiple stressors and associated pressures, such as climate change and introduced species, will also be considered. (p. 2)
	Ministry for the Environment	Hitting the Mark – Our Strategic Plan to 2045	GDS05	<p>Whenever we use the environment, we encounter or create risks to ourselves and to the environment. These risks vary from the relatively constant, to less frequent but high impact events. Risks can impact on air, water and soil, and may result from natural hazards, climate change, or risks from new technologies and substances. These risks need careful management to avoid or minimise negative consequences, and to protect the resilience of the systems.</p> <p>If we want to continue to use our environment, it is essential that we manage the natural and human-made impacts that affect animal and plant health, wider human and environmental health, well-being, and the economy. For example, as we adapt to the impacts of climate change, we must improve how we protect against floods and tidal surges, change the way we build houses, and ensure our roads and other critical infrastructure services are able to withstand more extreme climate events.</p> <p>This outcome involves taking action to reduce risks, but it also means taking advantage of opportunities that result from such risks. Using the climate change example again, while some regions will experience more frequent drought, some areas of dairy, sheep, and beef pasture production are likely to benefit from climate change if farm management practices change to make the most of increased pasture production. Farmers could even change the crops and animals they farm to ones better suited to a changing climate. There are also opportunities to improve how we manage and regulate hazardous substances, new organisms, and other scientific technologies to ensure they are flexible and responsive to scientific advances while still effectively managing risk.</p> <p>We are not seeking a risk-free New Zealand, but a place where risks are mitigated where possible, and decisions about risk are well informed, balanced, and effective. (p. 15)</p>

Action points	McGuinness Institute Comments
<ul style="list-style-type: none"> Construct coastal defences. 	
N/A	
<ul style="list-style-type: none"> Improve the management and regulation of hazardous substances, new organisms and other scientific technologies to ensure they are responsive to scientific development while managing the risks. 	

Sector	Department	Name of document	Number	Excerpt copied from GDS
Environment Sector (cont.)	Ministry for the Environment (cont.)	Mātauranga Whakauka Taiao - Environmental Education for Sustainability (jointly with DOC)	GDS06	The first step will be to identify a targeted set of programmes where connections can be made with EEFS. Predator Free 2050, freshwater improvement initiatives, the National Science Challenges, Primary Growth Partnerships, climate change initiatives, threatened species programmes, and government environmental funds, such as Curious Minds and the Community Environment Fund, are all examples of programmes that can support education about the environment and actions to support sustainability. (p. 17)
		Essential Freshwater Healthy Water, Fairly Allocated (Jointly with MPI)	GDS08	<p>Fix water and land use fundamentals – address systemic failures and gaps in the system for managing freshwater and land use; and establish solutions for water quality, use, allocation and storage that are effective, durable, and future-proofed for a changing climate; and work with the land use sectors to move toward higher value land uses with lower environmental impacts. (p.42)</p> <p>The freshwater issues we need to resolve have strong linkages with the work the Government has initiated on sustainable agriculture, freshwater ecosystem restoration, rebuilding our regions, planting a billion trees over the next 10 years, and climate change. All this work is underpinned by the vision the Government has for our land-based sectors, which is the subject of a related Cabinet paper titled ‘Aligning land-based sector work programmes’. In that paper we outline proposals for a Ministerial Group on sustainable land-based sectors which would provide oversight and leadership across these key areas of work, including the freshwater programme outlined in this paper. (p. 45)</p>
External Sector	Ministry of Defence	Strategic Defence Policy Statement	GDS02	<p>New Zealand and Pacific island countries are increasingly impacted by a range of compounding, climate change-related problems stemming from rising temperatures, rising sea levels and other changes in weather patterns. The impacts of these changes will be experienced most acutely and immediately in the Pacific and the broader developing world - places comparatively less equipped to handle these challenges.</p> <p>Climate change is increasing the frequency and intensity of weather extremes such as cyclones, rainfall events, droughts, and flooding from sea level rise. New Zealand is already experiencing the erosion of coastlines and impacts on coastal developments and infrastructure. In the Pacific, climate change is also exacerbating marine water pollution and the salinisation of water supplies, agricultural lands and fresh water ecosystems. Rising temperature and acidification of the ocean is beginning to impact on marine and coastal ecosystems important for economic wellbeing and subsistence.</p> <p>Over time, climate change impacts human security, with increasing water shortages, food insecurity, and health impact such as increased vector-borne and bacterial diseases and compromised nutrition. Where livelihoods are affected, climate change will induce displacement and migration (both internal and cross-border) and has the potential to destabilise areas with weak governance, magnifying traditional security challenges. (p. 18)</p>

Action points	McGuinness Institute Comments
<ul style="list-style-type: none"> Use programmes such as monetary funds and initiatives to support better education around the environment and supporting sustainability efforts. 	
<ul style="list-style-type: none"> Address failures and gaps in the system for managing fresh water while also establishing solutions and future-proofing the current system. 	
N/A	

Sector	Department	Name of document	Number	Excerpt copied from GDS
External Sector (cont.)	Ministry of Defence (cont.)	Defence Capability Plan 2019	GDS03	<p>The Climate Crisis: Defence Readiness and Responsibilities describes how climate change will be one of the greatest security challenges for New Zealand defence in the coming decades. The Pacific region, including New Zealand, will continue to be impacted by the intensifying impacts of climate change.</p> <p>The dramatic climate effects the Pacific region is facing, stemming from rising temperatures, include continued sea level rise, increased frequency and intensity of extreme weather events such as storm surges, increased intensity of tropical cyclones, and more variable rainfall patterns and prolonged droughts. The implications of these effects include a range of environmental impacts, all of which have flow-on economic, cultural and social consequences.</p> <p>The assessment demonstrates that when the effects of climate change intersect with a complex array of environmental and social issues, these can be significant contributors to both low-level and more violent conflict. Security implications can be further magnified by weak governance and corruption.</p> <p>With current warming rates, the links between climate change and security are on course to intensify, and without prioritisation the New Zealand Defence Force, as well as those of our partners, will be stretched with a growing number of tasks in response to climate-induced impacts globally. (p. 17)</p>
	Ministry of Foreign Affairs and Trade	Antarctic & Southern Ocean Science	GDS01	<p>Atmospheric measurements, including sampling the boundary layer greenhouse gases and monitoring the ozone hole, are a key component to understanding global processes, particularly as high latitudes are an ideal location for upper atmospheric research. These and other long-term monitoring projects contribute directly to global networks and will continue to be a core part of New Zealand's research effort in Antarctica.</p> <p>We will know we are delivering on this Outcome when, for example:</p> <ul style="list-style-type: none"> • climate and sea level projects assessed by the IPCC are using information from New Zealand-supported Antarctic research as inputs into climate and sea-level models. • refined climate and sea level projections assessed by the IPCC include the impact of Antarctica and are being used as input into the Government's climate change policy. we have an improved understanding of past and present processes that take place in Antarctica and the Southern Ocean to determine the southern influences on New Zealand's land, ocean and climate and hence better identify Antarctica and the Southern Oceans impact on, and response to, climate change. • we have an improved understanding of the Antarctic atmosphere's response to global change, the future status of ozone loss in the Antarctic and Antarctica's role in the global carbon cycle. (p. 15)

Action points	McGuinness Institute Comments
<p>N/A</p>	
<ul style="list-style-type: none"> • Report in a more timely and effective manner. 	

Sector	Department	Name of document	Number	Excerpt copied from GDS
Finance and Government Administration Sector	Department of the Prime Minister and Cabinet	National Disaster Resilience Strategy	GDS02	<p>Climate change and environmental degradation, which could impact on, or accelerate, a wide range of our risks owing to their effects on sea level rise, the frequency and severity of natural hazards and extreme weather, biodiversity, biosecurity, and the availability and quality of ecosystems and their services. (p. 14)</p> <p>New Zealand takes a proactive, anticipatory, smart approach to limit impacts before they happen, understanding that action up-front limits costs later. This includes taking steps to mitigate the risks of climate change, and to adapt to change already taking place. Tough issues are tackled through collective conversation and action. Resilience is integrated into urban and rural design principles as a matter of course and supported by quality information on safe building materials and design. Rich data and modelling of hazard and risk are enabling the transition to smart land-use, where permanent dwellings and key infrastructure are not built on the highest risk ground. (p. 25)</p>
		Child and Youth Wellbeing Strategy	GDS04	Youth voices and action have recently placed a spotlight on the importance of addressing climate change and environmental issues. However, compared to other countries, New Zealand 15-year-olds report low awareness of environmental problems (63rd of 71 countries on PISA 2015 index) and they also reported low optimism. Young people need opportunities and information to exercise kaitiakitanga now and for the future. (p. 58)
	The Treasury	The Thirty Year New Zealand Infrastructure plan	GDS01	Our climate is changing, and our natural resources are under pressure. Rainfall patterns are changing, and sea levels are expected to rise by 30 centimetres by 2050. Flooding is our most frequent natural disaster with an average annual cost of approximately \$51 million. As a country we have a wealth of natural resources, but we are beginning to deplete some of our important natural resources and are reaching limits on some of the crucial inputs such as land and fresh water. These issues raise questions around how we develop and manage our infrastructure – it needs to be resilient to changes over time, and use resources efficiently. (p. 7)
		He Tirohanga Mokopuna 2016 Statement on the Long-Term Fiscal Position	GDS02	Adapting to climate change is also an important long-term issue. Localised impacts from sea level rise (including flooding of homes, businesses and infrastructure) are predicted to be felt within the next 40 years – even if there is stringent mitigation of global emissions. Most other physical impacts, such as changing precipitation patterns, are not expected to be widely felt in New Zealand until later in the century. Even so, planning for these now – and building more resilient businesses and communities – will help reduce the long-term impacts and costs of climate change. (p. 53)
		He Puna Hao Pātiki 2018 Investment Statement	GDS03	Natural capital concepts help to inform difficult choices to use or conserve natural resources, recognising that alternative uses may also contribute to wellbeing. Adverse trends affecting natural capital, such as climate change, may also require costly remediation in the future. Recognising this likelihood enriches consideration of the outlook for the liability side of the government balance sheet. (p. 75)

Action points	McGuinness Institute Comments
<ul style="list-style-type: none"> A proactive and anticipatory approach to limit climate change impacts. 	
N/A	
N/A	
<ul style="list-style-type: none"> Build more resilient businesses and communities to reduce long-term impacts that may be caused by climate change. 	
N/A	

Sector	Department	Name of document	Number	Excerpt copied from GDS
Primary Sector	Land Information New Zealand	Outcomes Framework	GDS07	<p>Support efforts to prepare for, mitigate and adapt to the impacts on land and sea of climate change and one-off events (natural and man-made).</p> <ul style="list-style-type: none"> mitigation measures (e.g. riparian planting) in overseas investment consents datasets to support hazard mapping, research and forecasting of events and climate change advise government on long-term options for Edgecumbe, etc. (p. 6)
	Ministry for Primary Industries	Ministry for Primary Industries Science Strategy - Rautaki Pūtaiao	GDS08	<p>Sustainable agriculture and climate change research – This includes research commissioned through different funds, alliances or centres that ranges from fundamental research into mitigating greenhouse gases to supporting applied research and extension projects. (p. 10)</p> <p>International context MPI's science activities have an important international context that operates across different layers. Scientific justification is critical for our food safety and biosecurity import measures, our activities on climate change and increasingly on aspects of sustainable production and biodiversity. Science evidence influences the technical content of international trading standards to reflect New Zealand systems and interests.</p> <p>Science helps us gain better market access and cost-advantages for New Zealand export industries through equivalence negotiations with trading partners and helping to ensure trust and confidence in our export assurances.</p> <p>We also rely on our collaborations with international science agencies and organisations to access the latest information in science and technology, and to ensure that MPI has science credibility and relevance in the international arena. (p. 12)</p>
		Biosecurity 2025 Direction Statement for New Zealand's Biosecurity System	GDS09	<p>Protecting New Zealand from the risks posed by pests and diseases is a continual challenge. The threats we face are growing in scale and complexity. Growth and diversity in trade and tourism, changing risk pathways, climate change, and pressure from established pests are just some of the examples of the pressures we face. (p. 3)</p> <p>CLIMATE CHANGE alters risks posed to New Zealand by pests and diseases, and risks coming from our trading partners. (p. 4)</p>

Action points	McGuinness Institute Comments
<ul style="list-style-type: none"> • Use mitigation measures such as riparian planting, datasets to support mapping and forecasting climate change. • Advise government about long-term options that could be taken in terms of climate change. 	
N/A	
N/A	

Sector	Department	Name of document	Number	Excerpt copied from GDS
Primary Sector (cont.)	Ministry for Primary Industries (cont.)	Primary Sector Science Roadmap	GDS10	<p>Climate change (including sea-level rise and ocean acidification) will increasingly impact on our seas, freshwater, land, biodiversity, biosecurity and economy; and our primary sector must be prepared. New Zealand is committed to reducing its greenhouse gas emissions by 30 percent of its 2005 level by 2030 under the Paris Agreement. With approximately 50 percent of our emissions coming from agriculture and with plantation forestry acting as an important carbon sink, it is clear that the primary sector will play a vital role in achieving our greenhouse gas mitigation goals. Beyond greenhouse gases, climate change may have profound impacts on the nature and distribution of our primary production. For example, crops may need to be developed with a greater ability to adapt to temperature and drought; and land-use decisions will need to address different types of plant and animal production for different regions and soil types. Overall, our science needs to ensure that we have greater adaptability and flexibility in sustaining and managing resources. (p. 12- p. 13)</p> <p>Effective management of our natural resources can also have benefits for other sectors, for example, protection of human health through a reduction of diseases transmitted from animals, and a higher-value tourism experience of our natural environment. (p. 13)</p>
		Essential Freshwater; Healthy Water, Fairly Allocated (jointly with MfE)	GDS12	<p>Fix water and land use fundamentals – address systemic failures and gaps in the system for managing freshwater and land use; and establish solutions for water quality, use, allocation and storage that are effective, durable, and future-proofed for a changing climate; and work with the land use sectors to move toward higher value land uses with lower environmental impacts. (p. 42)</p> <p>The freshwater issues we need to resolve have strong linkages with the work the Government has initiated on sustainable agriculture, freshwater ecosystem restoration, rebuilding our regions, planting a billion trees over the next 10 years, and climate change. All this work is underpinned by the vision the Government has for our land-based sectors, which is the subject of a related Cabinet paper titled 'Aligning land-based sector work programmes'. In that paper we outline proposals for a Ministerial Group on sustainable land-based sectors which would provide oversight and leadership across these key areas of work, including the freshwater programme outlined in this paper. (p. 45)</p>
		Aquaculture Strategy	GDS14	<p>The challenge</p> <p>The world's climate is changing, the global population is growing, and natural ecosystems are under increasing pressure. Consumers and regulators are increasingly demanding sustainability not just at the farm level, but across the value chain – from farm to plate. (p. 4)</p> <p>Actions</p> <ul style="list-style-type: none"> • Forecast the effects of climate change on the aquatic environment. Plan and support actions for resilience and adaptation. • Support industry to transition to selective breeding and biome technology to improve value and resilience. • Support an industry-led spat strategy to safeguard from the impacts of climate change and provide for planned growth. (p. 14)

Action points	McGuinness Institute Comments
N/A	
<ul style="list-style-type: none"> Address failures and gaps in the system for managing freshwater while also establishing solutions and future-proofing the current system. 	
<ul style="list-style-type: none"> Forecast the effects of climate change on aquatic breeding. Support the industry transition to becoming more resilient. Support the industry-led strategy to safeguard from the impacts of climate change. 	

Sector	Department	Name of document	Number	Excerpt copied from GDS
Social Services Sector	Ministry for Social Development	Better Late Life – He Oranga Kaumātua 2019 to 2034 - Super Seniors	GDS10	<p>The impacts of climate change and natural disasters such as earthquakes may affect older people in a number of ways. Some older people living in coastal communities could be at risk from rising sea levels and coastal erosion, as well as increased flooding in some areas.</p> <p>Insurance is becoming unaffordable or unavailable in certain areas, impacting on older people’s financial security and living choices. (p. 9)</p>

Action points	McGuinness Institute Comments
N/A	

Appendix 2: Implicit climate change strategies

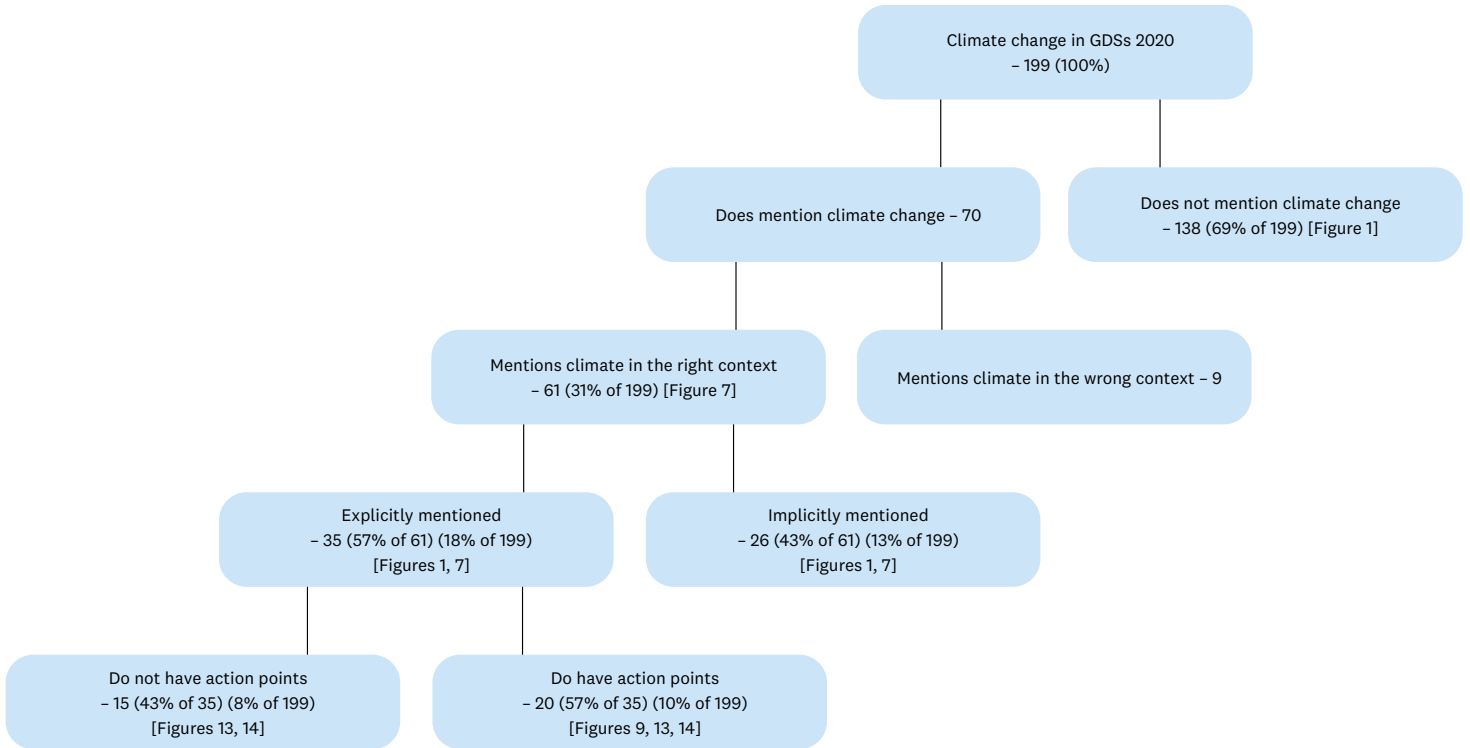
Sector	Department	Name of document	Number	Excerpt copied from GDS
Economic Development and Infrastructure Sector	Ministry of Business Innovation and Employment	Energy Strategy	GDS04	Global challenges of energy supply and climate change will increasingly influence the availability and cost of energy. New Zealand's future competitiveness will, in many sectors of the economy, require innovative solutions in the sources and uses of energy – both renewable and non-renewable. (p. 3)
		National Statement of Science Investment	GDS11	NEW ZEALAND IS A TECHNOLOGY AND INDUSTRY LEADER IN PRIMARY INDUSTRIES Primary industries generate around 7.4 per cent per cent of New Zealand's GDP. Another 5 per cent of GDP is attributable to manufacturing food, beverages, wood and paper. Many of our areas of comparative advantage lie in primary sector goods. Primary industries are a significant user of natural resources, resulting in competition and conflict over issues such as freshwater, mineral extraction, biodiversity, and climate change. (p. 38)
		Our Employment Strategy	GDS18	For New Zealand and our Pacific neighbours, climate change will also have a profound impact. Part of the Government's response to that challenge is for New Zealand to transition to a more sustainable, low emissions economy. (p.11)
Education and Workforce Sector	Ministry of Education	International Education Strategy 2018-2030	GDS03	Global citizens are those who can study, work and live across cultural and national boundaries. They are open to new ideas, connected internationally, outward-focused and interested in other people and their cultures, and they know that what is accepted in one culture may not be accepted in another. We need to be global citizens so that we can tackle global issues of the 21st century, such as sustainability, globalisation and climate change. (p. 22)
		Action Plan for Pacific Education 2020-2030	GDS06	Celebrate and value Pacific success in learning environments, including community contributions that are relevant such as Pacific youth fighting climate change. (p. 32)
Environment Sector	Department of Conservation	Subantarctic Islands Research Strategy	GDS01	However, since the declaration of these islands as a World Heritage Area, and given the increasing concern about the effect of exotic species in conjunction with climate change and increasing pressure from tourism, further restrictions on access may be warranted. (p. 10)
		New Zealand sea lion/rāpoka Threat Management Plan	GDS06	Success across the New Zealand sea lion range 1. Pup mortality from falling into natural holes is reduced 2. Disease research yields answers to inform recommendations to reduce pup mortality from Klebsiella pneumoniae 3. Estimation of SLED efficacy and cryptic mortality affecting adult female survival improves 4. The effects of climate change and fisheries on sea lion nutritional status are better understood 5. Sea lion breeding sites developing and colonies establishing at new locations 6. The New Zealand sea lion threat status improves from Nationally Critical to Not Threatened. (p. 13)
		Towards a Predator Free New Zealand - Predator Free 2050 Strategy	GDS11	Our biodiversity continues to face a number of ongoing pressures and our changing climate is exacerbating existing pressures on native species and ecosystems. (p.11)
		Te Kaweka Takohaka mō te Hoiho	GDS13	Hoiho are recognised as a sentinel species for the setting of standards to reduce New Zealand's contribution to climate change. Appropriate marine protection measures have been investigated and have been progressed to implementation to increase the food basket for hoiho. (p. 21)
	Ministry for the Environment	National Implementation Plan under the Stockholm Convention	GDS02	Under Article 14 of the Convention, the GEF has been given interim designation as the principal entity entrusted with the operations of a financial mechanism referred to in Article 13. New Zealand has committed 4 million Standard Drawing Rights (SDR) to each of the past three replenishment rounds. The GEF's current funding mandate covers ozone depletion, climate change, international waters and biodiversity, land degradation and, most recently, POPs. (p. 33)
		Waste Strategy	GDS03	The inclusion of waste disposal facilities in the emissions trading scheme will also encourage the climate change impacts of landfill gas emissions to be reflected in waste disposal charges. (p. 2)
		Our Science Strategy–Rautaki Pūtaiao	GDS07	Science has a role in informing public debate about the environmental challenges we face today. We rely on science to understand and report on our environment, help prioritise investment and action, and explore, enact, and evaluate management options. For example, science underpins the Ministry's national environmental reporting programme. Science helps us think about tomorrow, and supports our stewardship role. Science helps us predict the longer-term impacts of the choices that decision-makers take and consider alternative paths. For example, science supports the Ministry's work on sustainable wealth creation and natural capital. Science will be needed in the future to find new solutions, particularly as the climate changes, our population grows, and our expectations change. Science will provide new technologies, and help us to consider and understand their opportunities and risks. For example, science informs the Ministry's work on waste and alternatives to plastics. (p. 8)
		Shared Interests in Freshwater	GDS09	Central and local government have a range of support mechanisms and funding available or under development that can be applied to improve water quality (and wider environmental and commercial outcomes). This work area would look across these to assess whether they are appropriately aligned with key priorities; coordinated across government and with private sector-led support; and are adequately responding to the needs of Māori. Central government support includes: <ul style="list-style-type: none">Provincial growth fund1 billion trees programmeSustainable Farming FundPrimary Growth Partnership (PGP)Afforestation grants, the Erosion Control Funding Programme, and the Hill CountryFreshwater Improvement Fund; andClimate change and water-related research funds, including those targeted at reducing (p. 47)

Sector	Department	Name of document	Number	Excerpt copied from GDS
External Sector	Ministry of Foreign Affairs and Trade	Trade Recovery Strategy	GDS08	Concerted open plurilaterals (agreements that are open to other partners to join): New Zealand will continue to pursue new 'plurilateral' negotiations to retain as much of the rules-based system as possible. The Digital Economy Partnership Agreement (DEPA) and the Agreement on Climate Change, Trade and Sustainability (ACCTS) are examples of this. (p. 4)
Finance and Government Administration Sector	Department of Internal Affairs	Archives 2057 Strategy	GDS02	As we move towards 2057, there will be global conflicts; climate change impacts; changing migration patterns and challenges for the New Zealand economy to maintain living standards with an aged population. (p. 9)
		Strategy for a Digital Public Service	GDS05	We're dealing with increasing diversity and complexity in both society and the economy. Challenges such as climate change, mental health, poverty and family violence are more interconnected and often outside the mandate of any one agency to fix. (p. 12)
		Three Waters Reform Programme	GDS06	The reform of three waters services will also support increased sustainability and resilience of communities to natural hazards and climate change. (p. 1)
	Department of Prime Minister and Cabinet	National Civil Defence Emergency Management Strategy	GDS01	Scientific research into the New Zealand hazardscape continues to identify new hazards and often points to a greater risk from our known hazards than was previously understood. There is also general acceptance in New Zealand that climate change is happening; that the changes are due to human activity; and that many areas of life will be affected. While climate change is not expected to create new hazards, it may change the frequency and intensity of existing hazards, as well as introducing long-term shifts in climate patterns. (p. 3)
Health Sector	Ministry of Health	He Korowai Oranga Māori Health Strategy	GDS18	Achieving wai ora will mean that the environment in which Māori, and all New Zealanders, live, work and play is safe. Wai ora also focuses on ensuring Māori have appropriate access to quality housing, safe drinking water and air, and healthy food, and that we are prepared for emergency events – for example, pandemics and natural hazards such as earthquakes. Dealing with the impact of climate change on health is also a focus for the future. (p. 6)
Primary Sector	Land Information New Zealand	The Crown Property Strategy	GDS05	Contribute to development and implementation of LINZ-wide strategies including four outcomes framework "pillars" (Data and Information, Property, Land Management, Valued NZ Assets) and three identified strategic problems (Water, Resilience and Climate, Urban Areas). (p. 7)
		Regulatory Stewardship Strategy	GDS06	Domestically, New Zealand faces challenges that are part of this global context. Climate change, water quality and the preservation of biodiversity are key environmental issues the New Zealand public expects the Government to address. Social issues such as income and wealth inequality, housing affordability and access, and poverty are all priorities for the Government. (p. 6)
	Ministry of Primary Industries	Biosecurity Science Strategy for New Zealand, Mahere Rautaki Putaiao Whakamaru	GDS01	Linking capability for delivering biosecurity science research with capability for delivering research in other areas such as biodiversity, public health, environmental management, climate change and primary production will have benefits in terms of economies of scale and enhanced capacity, which can be drawn on when necessary. (p. 36)
		The Government's Aquaculture Strategy and Five-year Action Plan to Support Aquaculture	GDS05	Increase Value through Research and Innovation <ul style="list-style-type: none"> New Species Strategy Co-ordination, Collaboration and Prioritisation of Research Support Innovation Facilitate Field Trials and Research Incorporate Climate Change Research. (p. 3)
		New Zealand sea lion/rāpoka Threat Management Plan	GDS11	Success across the New Zealand sea lion range <ol style="list-style-type: none"> Pup mortality from falling into natural holes is reduced Disease research yields answers to inform recommendations to reduce pup mortality from Klebsiella pneumoniae Estimation of SLED efficacy and cryptic mortality affecting adult female survival improves The effects of climate change and fisheries on sea lion nutritional status are better understood Sea lion breeding sites developing and colonies establishing at new locations The New Zealand sea lion threat status improves from Nationally Critical to Not Threatened. (p. 13)
		Strategy for New Zealand food safety	GDS15	Global considerations such as climate change, food security and sustainability are resulting in new challenges for regulatory systems. Closer to home, economic and social changes demand a proactive response by New Zealand Food Safety/Haumaru Kai Aotearoa. (p. 5)
		Te Kaweka Takohaka mō te Hoiho	GDS17	Hoiho are recognised as a sentinel species for the setting of standards to reduce New Zealand's contribution to climate change. Appropriate marine protection measures have been investigated and have been progressed to implementation to increase the food basket for hoiho. (p. 21)

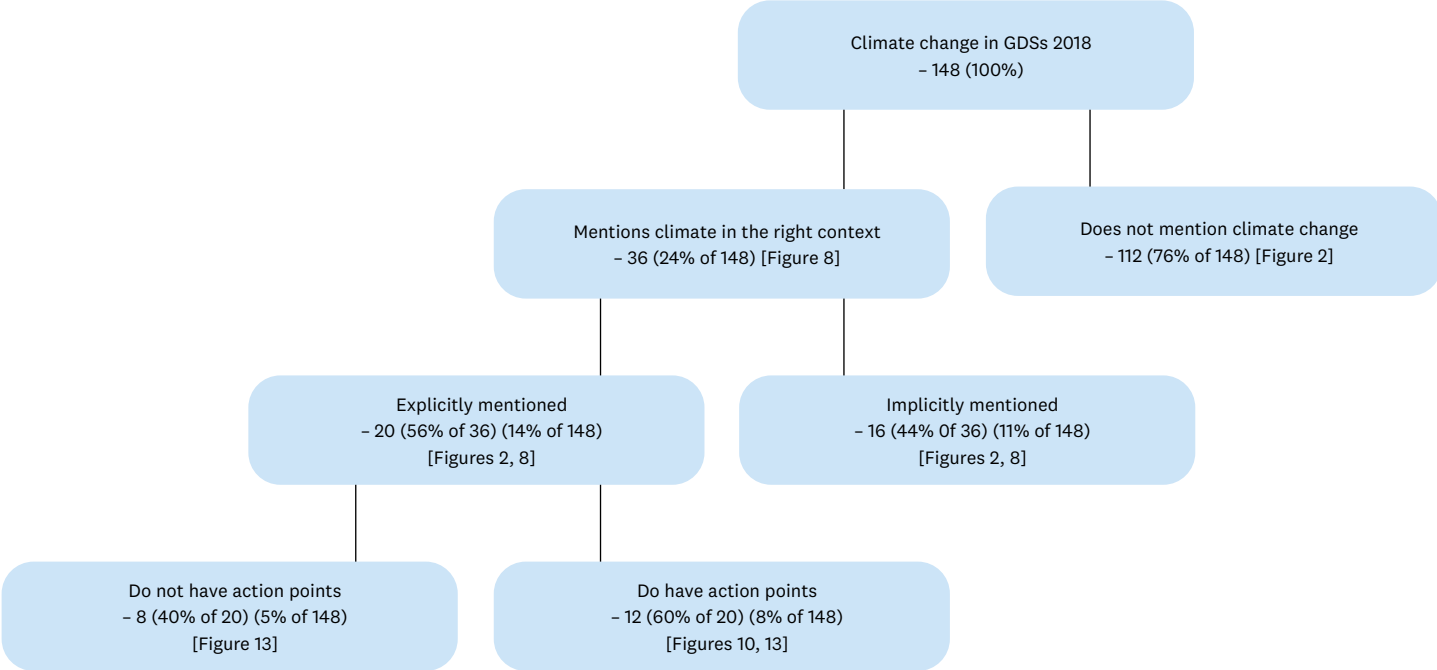
Appendix 3: List of 20 GDSs in operation that contain action points to tackle climate change

Year	Name of Department	Name of GDS
2011	Ministry of Foreign Affairs and Trade	Antarctic & Southern Ocean Science
2015	Ministry for the Environment	Hitting the Mark—Our Strategic Plan to 2045
2017	Ministry of Business, Innovation and Employment	Energy Efficiency and Conservation Strategy 2017–2022
2017	Department of Conservation	Mātauranga Whakauka Taiao—Environmental Education for Sustainability (jointly with MfE)
2017	Ministry for the Environment	Mātauranga Whakauka Taiao—Environmental Education for Sustainability (jointly with DOC)
2018	Ministry of Transport	Framework for shaping our transport system—Transport outcomes and mode neutrality
2018	Ministry of Transport	Government Policy Statement on Land Transport 2018–19–2027–28
2018	Ministry for the Environment	Essential Freshwater; Healthy Water, Fairly Allocated (jointly with MPI)
2018	The Treasury	He Tirohanga MokoPuna 2016 Statement on the Long-Term Fiscal Position
2018	Ministry for Primary Industries	Essential Freshwater; Healthy Water, Fairly Allocated (jointly with MfE)
2019	Ministry of Business, Innovation and Employment	Economic Plan for a Productive, Sustainable and Inclusive Economy
2019	Ministry of Business, Innovation and Employment	Responsibly Delivering Value
2019	Ministry of Business, Innovation and Employment	Small Business Strategy
2019	Ministry of Business, Innovation and Employment	Tourism Strategy (jointly with DOC)
2019	Department of Conservation	Tourism Strategy (jointly with MBIE)
2019	Department of Prime Minister and Cabinet	National Disaster Resilience Strategy
2019	Land Information New Zealand	Outcomes Framework
2019	Ministry for Primary Industries	Aquaculture Strategy
2020	Ministry of Business, Innovation and Employment	Building for the Future
2020	Department of Conservation	Te Mana o te Taiao Aotearoa New Zealand Biodiversity Strategy 2020

Appendix 4: 2020 GDS hierarchy diagram



Appendix 5: 2018 GDS hierarchy diagram



Endnotes

- 1 Version 2 can be currently found on the website here: <https://www.mcguinnessinstitute.org/publications/working-papers>
- 2 For example, see Cabinet Office. (30 November 2020). *Cabinet Minute: Leading the Way Establishing a Carbon Neutral Government Programme* (CNGP). Ministry of Business Innovation and Employment (MBIE) proactive release. Retrieved 23 August 2021 from <https://www.mbie.govt.nz/dmsdocument/13511-leading-the-way-establishing-a-carbon-neutral-government-programme-minute-of-decision-proactiverelase-pdf>
- 3 For example: ‘Labour will phase out fossil fuels in process heat by preventing installation of new low and medium temperature coal-fired boilers’, decarbonise the public transport bus fleet by 2035 And Support agricultural climate change research programmes. See New Zealand Labour Party. 2020. *Our Manifesto To Keep New Zealand Moving*, at p. 17. Retrieved 23 August 2021 from <https://www.labour.org.nz/policy>
- 4 Please note this wheel was updated from the original found on page 43 of *Working Paper 2019/04 – Analysis of Government Department Strategies between 1 July 1994 and 31 December 2018*. In 2020 He Korowai Oranga Māori Health Strategy (Ministry of Health) was moved from explicit to implicit; this change is reflected in the above wheel. To find the original 2018 strategy wheel, see: McGuinness Institute. (6 June 2019). *Working Paper 2019/04 – Analysis of Government Department Strategies between 1 July 1994 and 31 December 2018*. Retrieved 17 September from <https://www.mcguinnessinstitute.org/publications/working-papers/>
- 5 Section 8 (2) of the act states: The purpose of a briefing is to make available into the public domain—(a) information about medium- and long-term trends, risks, and opportunities that affect or may affect New Zealand and New Zealand society; (b) information and impartial analysis, including policy options for responding to matters in the categories referred to in paragraph (a). See Public Service Act 2020, s 8(2). Retrieved 23 August 2021 from <https://www.legislation.govt.nz/act/public/2020/0040/latest/LMS207641.html>



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