The diversity of New Zealanders

New Zealanders are diverse and this is reflected in the breadth of their interests, values and activities, and the government activity to support them.
The New Zealand Treasury has always recognised the diversity of outcomes but, like other government organisations, tends to silo its policy advice. Thus in Treasury analysis, economic policy advice focuses on increased incomes, and is separated from departmental expectations and expenditures that have wider wellbeing objectives. There is little or no reference to the 40 year perspective of the Long-Term Fiscal Statement.

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**Budget Economic and Fiscal Update**

- **Economic advice**
- **Departmental activities**

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The Supplementary Estimates of Appropriations for the Government of New Zealand

**Vote Business, Science and Innovation**

| Science and Innovation: Regional Research Institutes (MB4) |
| Scope of Appropriation |
| This appropriation is limited to expenses incurred in establishing and contributing to the operation of Regional Research Institutes. |

**Expenses**

<table>
<thead>
<tr>
<th></th>
<th>2019/20</th>
<th>Separation Expenditure</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Estimated $M</td>
<td>Separated $M</td>
<td>$M</td>
</tr>
<tr>
<td>Total Appropriation</td>
<td>1.416</td>
<td>1.416</td>
<td>1.416</td>
</tr>
</tbody>
</table>

**What is Intended to be Achieved with this Appropriation**

This appropriation is intended to achieve research institutes that maximise the unique business, technology and economic growth opportunities in their respective regions.

**How Performance will be Assessed and End Of Year Reporting Requirements**

**Pro forma Details**

<table>
<thead>
<tr>
<th></th>
<th>2019/20</th>
<th>Separated Expenditure</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Estimated</td>
<td>Separated Expenditure</td>
<td>$M</td>
</tr>
<tr>
<td>Number of Regional Research Institutes established with a focus on high-quality research (focused on industry and have a regional benefit)</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>
The Treasury Living Standards Framework (LSF) draws on OECD analysis of wider indicators of wellbeing. The starting point is answering three questions:

- What are current outcomes?
- Will these outcomes be sustained or improved?
- How resilient is the system?

The LSF is based on four capitals that organise indicators of sustainable **intergenerational wellbeing**. There are many possible ways to organise wellbeing into domains. What matters is that the framework can find somewhere to include all the relevant indicators.

**The Four Capitals**

Intergenerational wellbeing relies on the growth, distribution, and sustainability of the Four Capitals. The Capitals are interdependent and work together to support wellbeing.

- **Natural Capital**
  - This refers to all aspects of the natural environment needed to support life and human activity. It includes land, soil, water, plants and animals, as well as minerals and energy resources.

- **Human Capital**
  - This encompasses people’s skills, knowledge and physical and mental health. These are the things which enable people to participate fully in work, study, recreation and in society more broadly.

- **Social Capital**
  - This describes the norms and values that underpin society. It includes things like trust, the rule of law, the Crown-Māori relationship, cultural identity, and the connections between people and communities.

- **Financial / Physical Capital**
  - This includes things like houses, roads, buildings, hospitals, factories, equipment and vehicles. These are the things which make up the country’s physical and financial assets which have a direct role in supporting incomes and material living conditions.
Delivering on the ambitions for the LSF means integrating it more fully into the day-to-day work that Treasury and other agencies already do. Practical implementation of the LSF would see current income-based measures like per capita GDP supplemented in economic policy analysis with indicators of current and long-term wellbeing. As the framework is developed we will be able to answer questions on:

- The health of the four capitals, and whether or not they are growing and likely to be sustained;
- Social and demographic inequalities in wellbeing;
- How the flow of current benefits impacts on long-term outcomes;
- How resource allocation decisions impact on capital to improve current or long-term wellbeing.

To answer these questions we need indicators that are robustly evidence based so that changes in indicator values are clearly linked to changes in intergenerational wellbeing. This means they can become foundational to the long term operation of politically neutral public service agencies like the Treasury.

The remainder of this slide pack describes how current outcomes are measured in the LSF, the four capitals approach to gauging the sustainability of wellbeing and using the framework to understand opportunities and risk. We conclude with examples of how the LSF improves our analysis and some of the challenges in the new approach.
How is current wellbeing measured in an LSF?
Current outcomes are assessed using indices of both quality of life and material conditions. It is a snapshot measure. Each element has a distribution in the population and may vary across subpopulations (e.g. by gender or ethnicity). It is not just income or wealth that might be unequally distributed.

It cannot be measured as a single number without making significant implicit or explicit value judgements, for example, how important is health relative to income.

We are investigating supplements to OECD measures to capture New Zealand specific issues (see next slide).

Note: New Zealand household income data available but not included here because New Zealand is not part of the OECD Luxembourg Income Project. Follow OECD links on the web page for more information.
## Current wellbeing outcomes

Provisional table of current wellbeing indicators for New Zealand.

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Indicators</th>
</tr>
</thead>
</table>
| Housing            | • Housing expenditure  
                    | • Rooms per person  
                    | • Dwellings with basic facilities |
| Income             | • Household financial wealth  
                    | • Household net adjusted disposable income |
| Jobs               | • Job security  
                    | • Personal earnings  
                    | • Long-term unemployment rate  
                    | • Employment rate |
| Community          | • Quality of support network |
| Education          | • Years in education  
                    | • Student skills  
                    | • Educational attainment |
| Environment        | • Water quality  
                    | • Air Quality |
| Civic Engagement   | • Stakeholder engagement for developing regulations  
                    | • Voter turnout  
                    | • Corruption |
| Health             | • Self-reported health  
                    | • Life expectancy  
                    | • Suicide rate |
| Life Satisfaction  | • Life satisfaction |
| Safety             | • Homicide rate  
                    | • Feeling safe walking alone at night |
| Work-Life Balance  | • Time devoted to leisure and personal care  
                    | • Employees working very long hours  
                    | • Volunteering |
| Cultural Identity  | • Local Content on New Zealand television  
                    | • Maori language speakers  
                    | • Language retention |

Indicators in light blue are proposed New Zealand specific measures.
Will these outcomes be sustained or improved?
The four capitals
Financial and physical capital

What is it?

• Financial and physical capital includes the buildings, machines and equipment and other conventional investment, including capital spending by government.

• The financial assets of households provide resilience to unexpected life events and retirement. Housing is a major contributor to current wellbeing and is the highest-valued household asset.

• Government owns physical capital stock in schools, roads, and hospitals to deliver public services. Its financial assets provide a buffer through economic fluctuations.

How will we measure it?

Many elements of financial and physical capital are measured by Statistics New Zealand (SNZ) and we are using the OECD framework (see table below) to develop measures of this capital.

<table>
<thead>
<tr>
<th>Indicators relevant to both current and future well-being</th>
<th>Indicators of the “stock” of capital</th>
<th>“Flow” indicators (investment in, and depletion of, capital stocks)</th>
<th>Other risk factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net wealth of households</td>
<td>Net fixed assets per capita</td>
<td>Gross fixed capital formation</td>
<td>Indebtedness of the private (household) sector</td>
</tr>
<tr>
<td>Net financial wealth of households</td>
<td>Knowledge capital per capita</td>
<td>Investment in R&amp;D</td>
<td>Financial net worth of general government</td>
</tr>
<tr>
<td></td>
<td>Financial net worth of the total economy per capita</td>
<td></td>
<td>Leverage of the banking sector</td>
</tr>
</tbody>
</table>
Financial and physical capital

What are the issues?

Productivity Performance
It is difficult to compare capital stocks across countries, but evidence suggests capital stocks are low in New Zealand by OECD standards. Investment flows continue to be weak. This is probably a contributor to New Zealand’s sluggish labour productivity growth (OECD, 2017).

Distribution
The distribution of wealth in New Zealand is largely consistent with the OECD average. SNZ has shown the top 1% of New Zealand households had 18 percent of total net worth, compared to 13% in Australia.

Applying the LSF
The LSF potentially adds new perspectives on the role of shocks to the future financial position, how climate change might affect physical assets, and the impact of digitalisation on capital and labour.
What is it?

Natural capital are the aspects of our environment that improve intergenerational wellbeing, including land, soil, water, biodiversity, minerals, energy resources, and ecosystem services.

How will we measure it?

There are a number of international standards for estimating natural capital stocks and flows, with no single approach obviously the best for all purposes. The Treasury is developing an approach based on drawing together different expert approaches and, as with current wellbeing measures, we are adapting this framework for the New Zealand specific context. International standards considered to date are:

- The OECD Total Economic Value (TEV) approach - the OECD Total Economic Value model (TEV) estimates value based on five sources: Actual Use, Option, Existence, Altruistic and Bequest. For instance, water has an electricity and irrigation use value, an option value where it is available in rivers, lakes and so on, but not used; and an existence value from a cultural perspective;
- The UN System of Environmental – Economic Accounting (SEEA) – This framework outlines the non-quality adjusted stock of natural resources over time and a monetary value provided for some of these resources;
- The World Bank Genuine Savings (GS) approach – is a measure of how well a country maintains its total asset base, including natural, human and physical capital, by estimating whether or not any depletion of natural resources is used for current consumption or converted into other forms of capital for future use.
What are the issues?

**Fresh Water**
Population growth, irrigation expansion and climate change are increasing pressure on freshwater quality, with the major risks being agricultural and urban storm water run-off.

**Threatened Species**
Presently, more than 3000 of our native species are classified as ‘threatened’ or ‘at risk’, with around 800 at risk of extinction and the remainder vulnerable to small changes in the environment. Many of these are unique to New Zealand. Threats to biodiversity have the potential to reduce social and economic capital as well as natural capital.

**Climate Change**
Growing the economy while meeting emission reduction ambitions requires a focus on productivity, innovation, technology uptake and better environmental management. There are particular opportunities for New Zealand to build on our current strength as a highly efficient global food producer.
Social capital

What is it and how will we measure it?

There is no international standard for estimating social capital and its definition is highly contested. Our approach is to draw strands of work together in a working definition that supports policy. Thus social capital is:

- Networks, attitudes and norms promoting coordination and collaboration between people;
- Individuals’ social connections that provide emotional, instrumental and informational support.

### Drivers (inputs)

**Opportunities**
- Institutional quality
- Education
- Family/whānau wellbeing
- Material wellbeing
- Home ownership & residential stability
- Reconciliation of historical damage to trust (Treaty Settlements)
- Built environment conducive to social capital formation

**Challenges**
- Population diversity
- Media culture and bias

**Risks**
- Income inequality
- Lack of social skills or individuals’ ability to self-regulate

### Social capital (outputs)

- Bonding
- Bridging
- Linking

### Outcomes

**Individual outcomes**
- Better physical health
- Better mental health
- Better educational outcomes
- Better labour market outcomes
- Better housing outcomes

**Societal outcomes**
- Stronger economic performance
- Better democratic functioning
- Safer communities
- More inclusive society
Social Capital

What are the issues?

Social capital has a large and well-evidenced impact on economic performance, democratic functioning, public safety, educational outcomes, labour market outcomes, and individual health and wellbeing. The particular risk is that government agencies take it for granted because it is rarely measured. Potentially detrimental effects include increased income inequality, poverty, housing mobility and ownership rates, family and whanau wellbeing, institutional quality, educational outcomes and individual health and wellbeing.

To maintain and grow social capital through public policy, agencies across government will need to understand the social capital risks they are taking when providing advice and have a cross-government approach to taking opportunities to grow social capital.
Human Capital

What is it?
Human capital is an individual’s skills, knowledge, mental and physical health. It enables people to participate fully in work, study, recreation and in society more broadly.

How will we measure it?
The measures are still being explored, but those under consideration include:
- students leaving school with NCEA level qualifications;
- students leaving tertiary education with an undergraduate or equivalent qualification;
- students leaving tertiary education with a post-graduate or equivalent qualification;
- the percentage of women in paid employment working part-time;
- life expectancy;
- suicide rates;
- obesity and preventable conditions.
What are the issues?
Potential barriers to individuals investing in and using their human capital in the formal economy include structural disadvantage and some cultural or social norms.

Education
The human capital stock is increasing (through qualifications profile, lifetime earnings and higher relative earnings of qualified people) and is high relative to physical capital. However OECD evidence suggests this human capital advantage is decreasing, as our younger workers are less skilled than their international equivalent, and our highly skilled older workers start to leave the labour market.

Unpaid work
Unequal distribution of care and domestic responsibility between genders may cause labour market participation frictions.

Health
Overall living longer but:
• Outcomes linked to ethnicity;
• Higher morbidity;
• High suicide rates.
How resilient is the system?
A comprehensive set of environmental, social and economic sustainability indicators can be supported by evidence based resilience indicators. A useful way to frame risks is what we do and do not know about their impact on living standards capitals.

Each of the capitals is subject to risks that we have some ability to mitigate. The critical challenge remains: **Do the capitals have desired levels of resilience after risk mitigations?**

**Objective:** Increasing the freedoms of individuals to enjoy desired lifestyles

**Elements:**
- Physical Capital
- Human Capital
- Social Capital
- Natural Capital

**Risks**
- Earthquakes
- Floods
- Tsunamis
- Infrastructure disrepair
- White elephants
- Crime
- Ill health
- Skill Deficiency
- Poverty
- Welfare dependency
- Economic crises
- Education failure
- Civic society failure
- Climate Change
- Biodiversity risks
- Erosion

**Mitigations**
- Insurance
- Education Policy
- Welfare Reform
- Emissions Trading
Impact of uncertainty on living standards

Analysis does not remove uncertainty, but does help us manage it.

Current trends can be extrapolated, but we do not know how long they will last, nor what the new trends will be. Scenario planning helps us to be clearer about desired alternative futures and the impact of mitigation and adaptation strategies.

Some adverse events will always come as shocks. We know they will happen, but not when they will occur, nor the damage they will do. Stress testing helps us build resilience to these events. e.g. what environmental threshold is safe?

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### Risks affecting Living Standards

<table>
<thead>
<tr>
<th>Known Knowns</th>
<th>Unknown Unknowns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top Five Trends:</td>
<td>Highest Consequence Risks:</td>
</tr>
<tr>
<td>1. Rising income and wealth disparity</td>
<td>1. Tsunami</td>
</tr>
<tr>
<td>2. Changing Climate</td>
<td>2. Volcanic Activity</td>
</tr>
<tr>
<td>3. Increasing polarization of societies</td>
<td>3. Earthquake</td>
</tr>
<tr>
<td>4. Rising cyber dependency</td>
<td>4= Major cyber incident</td>
</tr>
<tr>
<td>5. Aging Population</td>
<td>4= Major oil spill</td>
</tr>
</tbody>
</table>

Source: Global Risks Report 2017, WEF

<table>
<thead>
<tr>
<th>Unknown Knowns</th>
<th>Unknown Unknowns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trends that cannot go on forever, don’t! However, prediction of tipping points is unreliable, nor is there good ex-ante knowledge over how they transition into new trends.</td>
<td>Humility required!</td>
</tr>
</tbody>
</table>

Source: DPMO
Risk and uncertainty is managed at three levels:

**Strategically** the question is how well we can grasp opportunities from changes in our external environment, while managing the risks. We are developing a more robust and proactive approach to national security risks that will enable a more systematic focus on building New Zealand’s resilience, providing stress testing of the financial robustness of government assets, and doing further work on climate change adaptation.

**Operationally**, the critical question is whether or not our targets are challenging and achievable. Without taking some risk, government agencies will necessarily underperform, but too much risk taking may lead to unacceptable failure. Government targets, departmental strategies, sector strategies and four year plans are currently the places these targets are spelt out. Setting such strategic objectives well will require ongoing dialogue with Ministers.

**Compliance management** is required to manage risks that we wish simply to minimise, for example fraud. Treasury’s view is that current internal control systems manage these risks reasonably well and more benefit will come from in improving risk management at the strategic and operational levels.
<table>
<thead>
<tr>
<th>Types of Opportunity/Risk Management</th>
<th>What exists? What is happening?</th>
<th>Priorities for discussion?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strategic Management</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Managing risks and trends</td>
<td>ODESC / DPMC National Risk Unit / MCDEM</td>
<td>Advice on Development of Resilience Measures?</td>
</tr>
<tr>
<td>For example: Earthquakes, GFC, Pandemics, Climate Change, Aging</td>
<td>Work on a National Risk Register and National Resilience Strategy</td>
<td>Capital</td>
</tr>
<tr>
<td>Can’t influence likelihood but can influence impact</td>
<td>2018 Investment Statement work in development</td>
<td>Economic - Financial</td>
</tr>
<tr>
<td>Success measured by resilience</td>
<td>Implementation of Sendai Framework</td>
<td>Economic - built</td>
</tr>
<tr>
<td>Grasping opportunities and trends</td>
<td>MBIE monitoring productive sector resilience</td>
<td>Natural Capital</td>
</tr>
<tr>
<td>For example: Windfall gains, technology, population growth</td>
<td>Climate Change Adaptability advice</td>
<td>Social Capital</td>
</tr>
<tr>
<td>Success measured by benchmarking</td>
<td></td>
<td>Human Capital</td>
</tr>
<tr>
<td><strong>Operational Management</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Managing desirable endogenous risks and opportunities:</td>
<td>Government Department/Sector Strategies</td>
<td>Advice on extent of ambition?</td>
</tr>
<tr>
<td>For example: how fast do we want to go, how bold should we be?</td>
<td>Four year plans</td>
<td>Advice on risk tolerances / risk appetites?</td>
</tr>
<tr>
<td>For example: Are targets sufficiently challenging and achievable?</td>
<td>SSC’s Workstreams:</td>
<td>Strategies for fast fail?</td>
</tr>
<tr>
<td>Can influence both likelihood and consequences</td>
<td>Treasury Strategic priorities:</td>
<td></td>
</tr>
<tr>
<td>Success measured by quality of strategies and the quality of their implementation</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Compliance Management</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Managing undesirable endogenous risks;</td>
<td>Currently internal controls in maintenance rather than development mode.</td>
<td>Assurance Advice?</td>
</tr>
<tr>
<td>For example: fraud, breaches of law</td>
<td>Governance utilises Risk, Audit Committees</td>
<td>Quantum of compliance activity?</td>
</tr>
<tr>
<td>Can influence both likelihood and consequences</td>
<td>Increasing use of data for diagnostic information</td>
<td></td>
</tr>
<tr>
<td>Success measured by effectiveness, efficiency of internal control.</td>
<td>Functional leads increasingly exercising their assurance mandate</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Capital</th>
<th>Absorption Indicators e.g.</th>
<th>Recovery Indicators e.g.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic - Financial</td>
<td>Liquidity / Debt</td>
<td>Capacity to borrow</td>
</tr>
<tr>
<td></td>
<td>Capital Adequacy</td>
<td>Capacity to adapt revenue streams</td>
</tr>
<tr>
<td>Economic – built</td>
<td>Building Code Compliance</td>
<td>Rebuild capacity</td>
</tr>
<tr>
<td>Natural Capital</td>
<td>Under/over allocation of resources</td>
<td>Regeneration capacity indicators</td>
</tr>
<tr>
<td>Social Capital</td>
<td>Size and strength of networks</td>
<td>Ability to establish networks</td>
</tr>
<tr>
<td>Human Capital</td>
<td>Mental Health</td>
<td>Retraining capacity</td>
</tr>
<tr>
<td></td>
<td>Poverty measures</td>
<td>Measures of mobility</td>
</tr>
</tbody>
</table>
How can we improve our advice to Ministers?
The Long Term Fiscal Statements (LTFS) has been issued every 4 years since 2006;

- It provides a scenario analysis of the fiscal position over the next 40 years, primarily based on current policy settings and demographic change.

- The 2006 and 2009 long-term fiscal statements were largely focused on developing and refining the methodology for projecting “what if?” scenarios of government finances over a 40 year period. In particular, how to assess the effects of population ageing on future taxes and spending (eg, health and New Zealand Superannuation).

- In 2013, the statement assessed some of the alternative policy responses within the context of the Treasury’s (then) living standards framework. The process of preparing the statement also involved an external panel of experts and a public conference.
**He Tirohanga Mokopuna**

The 2016 statement, *He Tirohanga Mokopuna*, acknowledges the dynamic relationship between New Zealand’s long-term public finances and intergenerational well-being.

- *He Tirohanga Mokopuna* provided a qualitative assessment of each of the four capitals, and incorporated an assessment based on social capital in the financial scenarios.

- The Treasury consulted widely in the development of *He Tirohanga Mokopuna*, including Chief Executive Officers (CEOs), farmers, small business owners, social workers, academics, and students from all over New Zealand. This engagement was summarised in an accompanying paper to the statement.

- Although the statement took a wider perspective, not all elements of the capitals approach were reflected in the projections. Illustrative scenarios on the fiscal and wider effects of improved social outcomes were included, but there was no numerical analysis of natural and human capital.
The 2018 Investment Statement – Investing for wellbeing

A wellbeing approach to an appraisal of the Crown balance sheet.

The Public Finance Act 1989 requires publication of a statutory document that describes and states the current value of the Crown’s assets and liabilities, changes in the past four years and foreseeable changes in the coming four years by March 2018. It will include a focus on natural capital. Treasury is drafting the Statement in consultation with stakeholders.

The statement illustrates how to increase the effectiveness of the Crown balance sheet investments, and achieve the best wellbeing outcomes for New Zealanders. To do this we need to go beyond the traditional GAAP accounting focus to show how assets and liabilities generate wellbeing.

It will link the Crown Balance sheet and Crown agency performance to wellbeing outcomes, supported by a five dimension performance assessment framework. The Statement will conclude with future areas of focus to support the progression of findings.
Challenges
What are the Challenges? (1)

Being at the leading edge
The first attempts to develop national income accounting were in the 17th century and modern variants have been in continuous developed since the 1940s. Academics and international bodies have started to develop wider wellbeing measures, but as practitioners apply their work, gaps in current analysis will become increasingly apparent.

Adapting current processes
The complexity of government processes means substantial time is needed to integrate new approaches. At this stage there is a stronger case for using the LSF in strategic decisions, which is closer to the intent of the work by international organisations. There may also be a case for specific impact analysis where there are material changes to large programmes with a direct link to household wellbeing (e.g. tax, housing costs).

Changes to initiative-by-initiative development by agencies and decision-making processes will require further development. Barriers include the quality of information we typically receive from agencies, cross agency standardisation, issues around attribution, and the sensitivity of the measurement.
What are the Challenges? (2)

Completing the analyses

Sensitivity of the measures
The sensitivity of the measures to real policy changes is still unclear because current measures have not been properly tested in a policy environment. What do we use when they are not sensitive enough to provide a guide for advice?

Sustainability
While the Brundtland Commission’s definition of “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” is widely accepted, in practice this encompasses a variety of practically different criteria that will differ by context.

Distribution
The traditional measures of inequality use the distribution of income, but where income does not properly proxy wellbeing, it will also poorly proxy its distribution. Adding other attributes of wellbeing may lead to counter-intuitive conclusions. For example, younger people tend to have lower incomes than older people, but older people tend to have poorer health. Does this mean income inequality measures should be adjusted to account for the benefits of better health?

Ownership
What is the natural, social and human capital equivalent to owning physical capital, including the individual benefits, obligations and responsibilities?
For more information
Further questions

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CEA@treasury.govt.nz