



THE TREASURY

Kaitohutohu Kaupapa Rawa

State and value of Natural Capital – a Treasury view

New Zealand Treasury

8 May 2018

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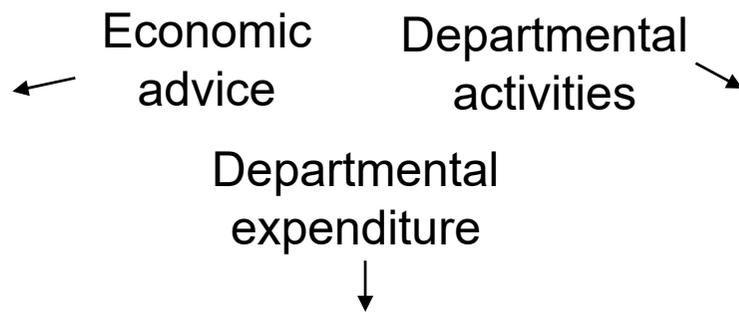
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In the beginning....

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.

Budget Economic and Fiscal Update

- Statement of Responsibility 1
- Executive Summary 3
- Economic Outlook 5
 - Overview 5
 - Recent Developments 8
 - The Economic Outlook 10
- Fiscal Outlook 23
 - Overview 23
 - Core Crown Tax Revenue 27
 - Core Crown Expenses 30
 - Operating Balance 33
 - Core Crown Capital Spending 36
 - Residual Cash and Net Core Crown Debt 39
 - Total Crown Balance Sheet 42
 - Comparison with the *Half Year Update* 44
 - Key Economic Assumptions Used in the Fiscal Forecasts 48
- Risks and Scenarios 49
 - Overview 49
 - Risks and Uncertainties Affecting the Economic and Fiscal Outlook 50
 - Key Risks to the Economic and Fiscal Outlook 52
 - Alternative Scenarios 55
 - Fiscal Sensitivities 58
 - Balance Sheet Risks 59
- Specific Fiscal Risks 61
 - Overview 61
 - Statement of Specific Fiscal Risks 65
 - Specific Fiscal Risks by Portfolio 67
 - Contingent Liabilities and Contingent Assets 76



Economic advice Departmental activities

Departmental expenditure

The Estimates of Appropriations for the Government of New Zealand

VOTE BUSINESS, SCIENCE AND INNOVATION			
	2016/17	2017/18	
	Final Budgeted \$000	Estimated Actual \$000	Budget \$000
Titles and Scopes of Appropriations by Appropriation Type			
Non-Departmental Other Expenses			
Commerce and Consumer Affairs: Financial Markets Authority Litigation Fund (M13)	2,000	2,000	2,000
This appropriation is limited to meeting the cost of major litigation activity arising from the enforcement of financial markets and securities markets law.			
Commerce and Consumer Affairs: Tobacco and Alcohol Litigation Fund (M13)	200		200
Energy and Resources: Electricity Litigation Fund (M28)			
This appropriation is limited to ensuring that the regulatory body for the electricity industry is able to participate in litigation effectively and without delay.			
Energy and Resources: International Energy Agency Contribution (M28)	150	150	150
This appropriation is limited to the payment of contributions towards the cost of energy-related research undertaken by the International Energy Agency.			
Science and Innovation: Catalyst Fund (M84)	9,675	9,675	13,351
This appropriation is limited to grants to support international science partnerships.			
Science and Innovation: Regional Research Institutes (M84)	1,416	1,416	23,584
This appropriation is limited to expenses incurred in establishing and contributing to the operation of Regional Research Institutes.			

The Supplementary Estimates of Appropriations for the Government of New Zealand

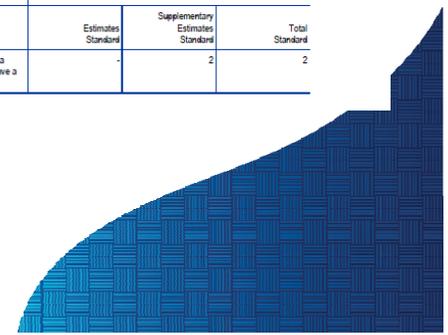
VOTE BUSINESS, SCIENCE AND INNOVATION			
Science and Innovation: Regional Research Institutes (M84)			
<i>Scope of Appropriation</i>			
This appropriation is limited to expenses incurred in establishing and contributing to the operation of Regional Research Institutes.			
<i>Expenses</i>			
	2016/17		
	Estimates \$000	Supplementary Estimates \$000	Total \$000
Total Appropriation	-	1,416	1,416

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

	2016/17		
Performance Measures	Estimates Stanbards	Supplementary Estimates Stanbards	Total Stanbards
Number of Regional Research Institutes established with a focus on high quality research focused on industry and have a regional benefit	-	2	2

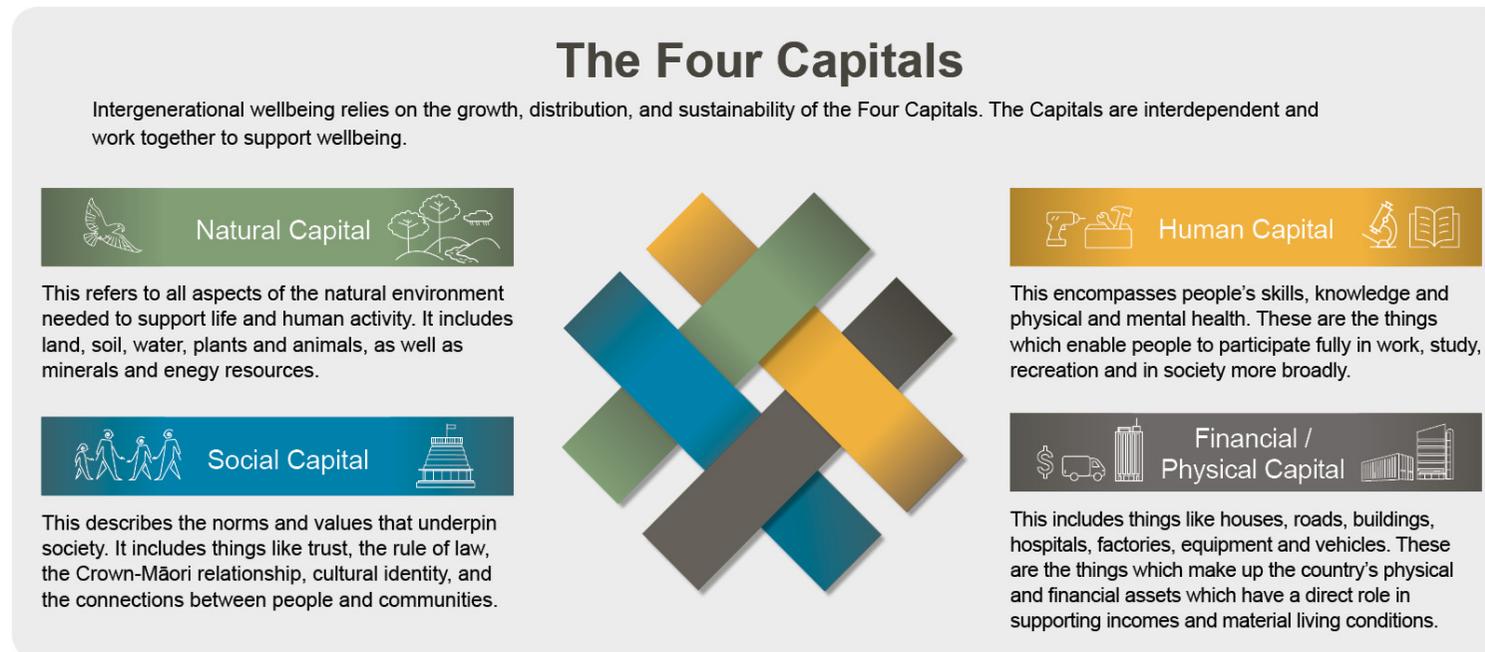


Dawn of a new era

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.



What is Natural Capital?

We subscribe to a variation of the OECD's definition of Natural Capital below:

“Natural capital refers to all aspects of the natural environment. It includes individual assets such as minerals, energy resources, land, water, trees, plants and wildlife. And, also includes broader ecosystems and their services – i.e.. The joint functioning of, or interactions among, different environmental assets, as seen in forests, soil, aquatic environment and the atmosphere.”



Why Value Natural Capital (Macro view)

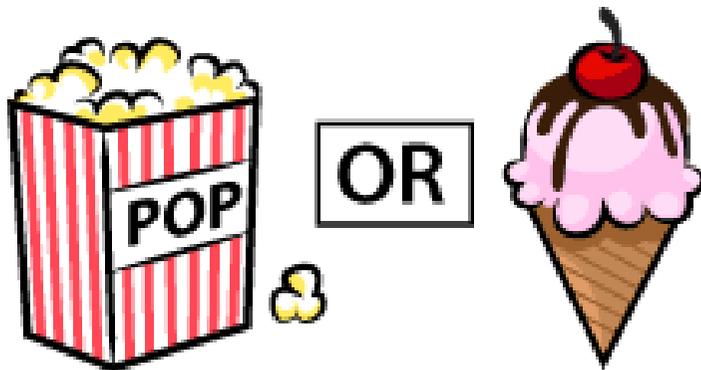


Natural capital is invoked for various purposes which affects the choice of technique:

- adjusting the national accounts that generate Gross Domestic Product (GDP) to reflect depreciation of natural assets, e.g. a Net DP or Green GDP
- providing a balance sheet of assets to be viewed alongside the GDP derived from the UN's System of National Accounts (SNA)
- providing for sustainable income by identifying a share of the proceeds of liquidating natural assets to invest in other assets yielding continuing income
- providing a clearer basis for monitoring changes in natural asset stocks than is provided by various ad hoc indicator sets

The OECD states that the SEEA is the recommended framework of agreed standards for preparing natural resource accounts and is essential for producing green growth indicators.

Why value Natural Capital (Micro View)



At the level of assessment of individual regulations or policies, approval of consents or appraisal of projects, the question arises as to what weight to give to natural capital when considering its use or retention against developments that transform it in some way. Here the question is what will be gained or lost by the transformation, given that development gains are expected and readily quantified but the impacts of natural capital loss on the community are less obvious?

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You are here: Home > Publications > Guidance and Instructions > Planning > Cost Benefit Analysis > Cost Benefit Analysis Tool - CBAX

A - Z

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Cost Benefit Analysis

Public Sector Discount Rates for Cost Benefit Analysis

Guide to Social Cost Benefit Analysis

Current Discount Rates

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The Treasury's CBAX Tool

Page updated 1 Sep 2017

The Treasury first released CBAX, a cost benefit analysis (CBA) tool, in October 2015. The CBAX version for Budget 2018 was released in September 2017.

The Treasury provides a CBA tool called CBAX

The Treasury encourages important public sector decisions to be informed by cost benefit analysis.

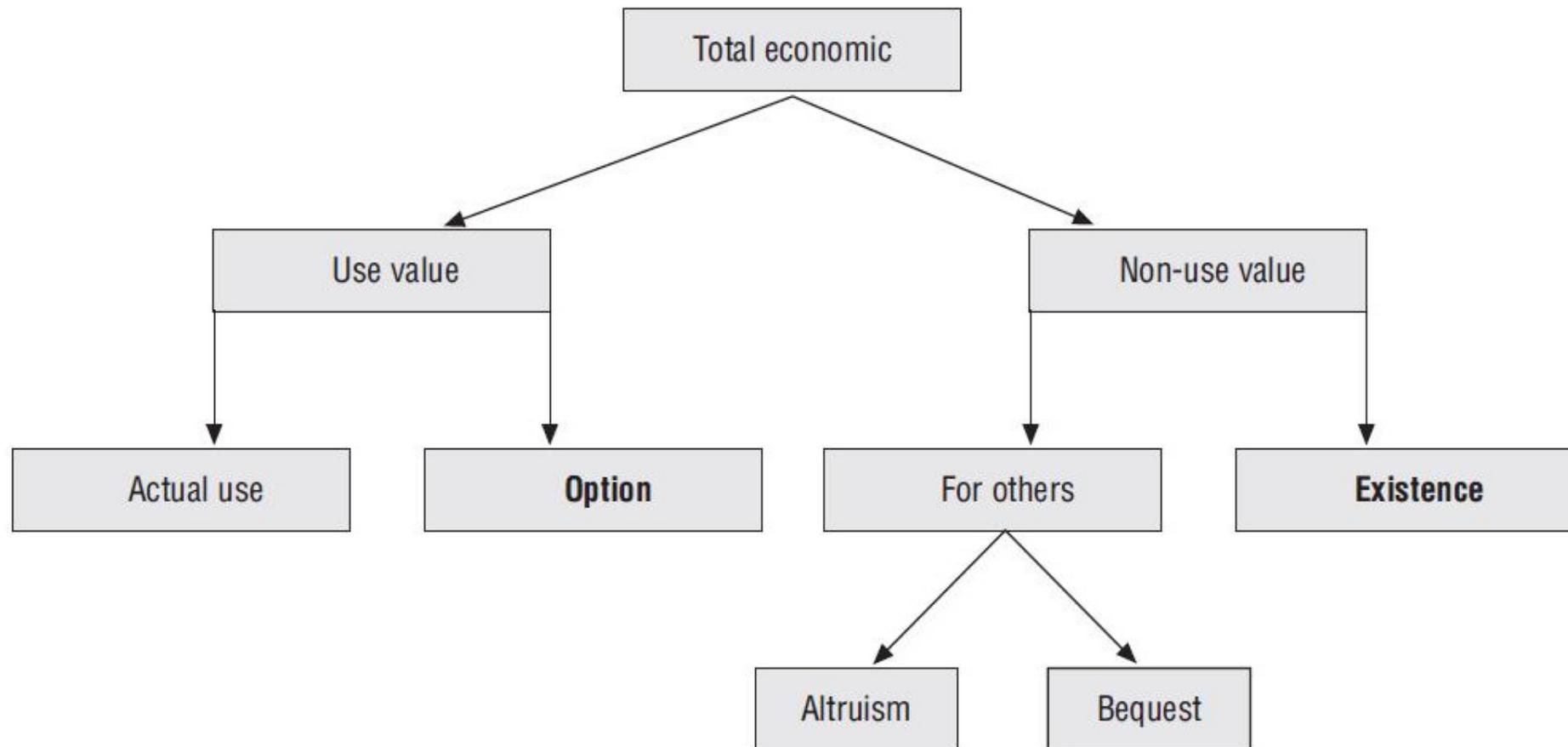
To help compare different options in New Zealand, the Treasury has developed a CBA tool called CBAX. CBAX is a spreadsheet model that contains a common database to help agencies monetise impacts and do return on investment analysis.

The CBAX tool helps agencies:

- to monetise and discount impacts, ie, CBA steps 4 and 5
- to take a long-term and broad view of costs and benefits
- to rigorously assess these by monetising impacts, where possible, and
- to be transparent about the assumptions and evidence base.

Framework: The value of Natural Capital

Figure 6.1. **Total economic value**



TEV applied: Forestry (WIP)

(i) Stocks & Ecosystem Services (Flows)

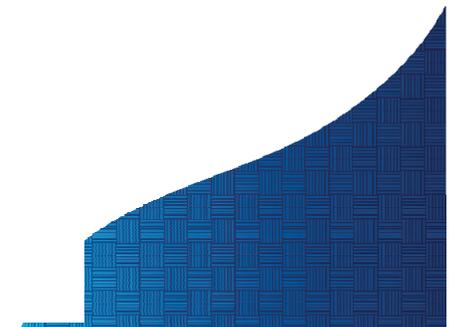
Total Economic Value	Direct Use Values	Provisioning services	Timber
		Regulating services	Non-timber forest products
	Indirect Use Values	Cultural services	Aquaculture
		Supporting services	Water supply
	Option Values	Option values	Fisheries
	Non Use Values	Existence values	Agriculture
			Hydro-electricity
			Climate regulation
			Water regulation
			Water purification and waste treatment
			Erosion regulation
			Air quality regulation
			Spiritual and aesthetic values
			Recreation
			Tourism
			Soil formation and maintenance
			Fire prevention
		Pharmaceuticals	
		Biodiversity Conservation	

(ii) Negative TEV Components (Stocks)

	Erosion
	Risk of damage by forest fires
	Risk of damage by floods

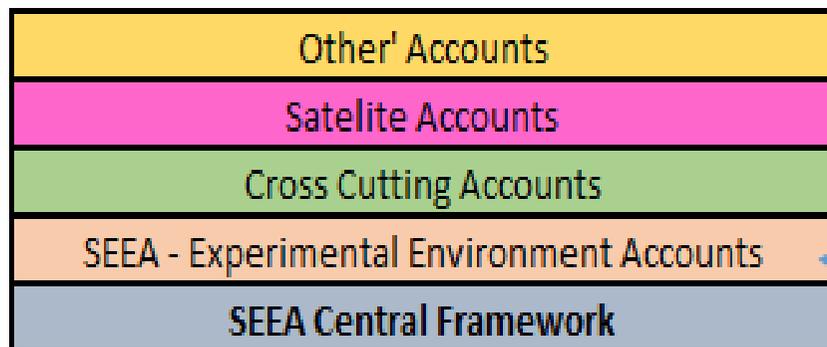
Net Total Economic Value

(i) - (ii)

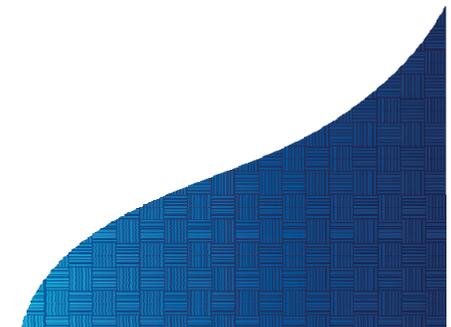
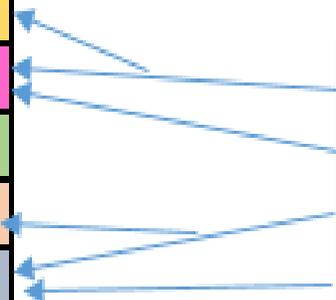
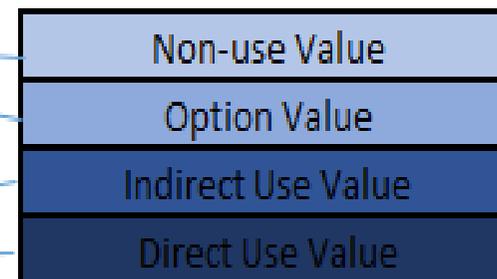


Environmental Accounts (WIP)

Environmental Accounts 'Stack'



TEV Framework



Key challenges

- Applying international standards in a fit for purpose way
- Prioritization of the key ecosystems and services to ensure timely deliverables
- Reliable, accurate, readily available data sources

Together we can get there



The End

Questions?

