



# Quality of budget initiatives with environmental considerations

## Lessons and insights for future budget processes

NZIER report to the Parliamentary Commissioner for the Environment

7 May 2021

## About NZIER

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NZIER is a specialist consulting firm that uses applied economic research and analysis to provide a wide range of strategic advice.

We undertake and make freely available economic research aimed at promoting a better understanding of New Zealand's important economic challenges.

Our long-established Quarterly Survey of Business Opinion (QSBO) and Quarterly Predictions are available to members of NZIER.

We pride ourselves on our reputation for independence and delivering quality analysis in the right form and at the right time. We ensure quality through teamwork on individual projects, critical review at internal seminars, and by peer review.

NZIER was established in 1958.

## Authorship

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This paper was prepared at NZIER by Peter Clough and Sarah Hogan.

It was quality approved by Todd Kriebel.

The assistance of Sarah Spring is gratefully acknowledged.



# 1 Background

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The Parliamentary Commissioner for the Environment (PCE) asked NZIER to conduct a review of the advice provided by agencies to support budget initiatives with significant or potentially significant environmental implications. Three agencies were included in this review. Two of these agencies are core environmental agencies and the third is an agency that routinely considers environmental outcomes.

In 2018, NZIER completed a review of budget initiatives for The Treasury which involved the development of a robust review process along with Treasury officials. The report on that review is available on the Treasury website.<sup>1</sup>

Although the purpose of that review was to evaluate the impact of the Treasury's CBAX tool on the quality of budget advice, the review process identified many general strengths and weaknesses across 50 budget initiatives put forward from 2015 to 2018 under ten Votes (A summary of the process and results is provided in Appendix A).

The PCE requested that NZIER conduct a review process aligned with the 2018 review. To that end, this review is aligned with the 2018 review in terms of the use and application of criteria, the overall scoring of initiatives, and the moderation and synthesis of initiative assessment, to generate comparable insights specifically on the quality of advice for budget initiatives with environmental considerations.

There were two objectives to this review:

- 1 Identify the overall quality of advice provided.
- 2 Assess the quality of advice regarding environmental aspects of budget initiatives.

Eighteen budget initiatives were provided for assessment.

**Table 1 Budget initiatives with environmental considerations**

2021 assessment

| Agency   | Year | Number of initiatives |
|----------|------|-----------------------|
| Agency 1 | 2019 | 3                     |
|          | 2020 | 3                     |
| Agency 2 | 2019 | 3                     |
|          | 2020 | 3                     |
| Agency 3 | 2019 | 3                     |
|          | 2020 | 3                     |

Source: NZIER

<sup>1</sup> <https://www.treasury.govt.nz/publications/review-cba-advice-support-budget-initiatives-nzier-report-treasury>

## 2 Our approach

Our approach to the assessment of budget initiatives began with a development process to ensure that the assessors would be able to apply the criteria used in 2018 consistently to the 2021 set of budget initiatives.

A key difference of note between this review and our previous review is that agencies included in this review were not required to use the Treasury’s CBAX model for any of their initiatives. In the 2018 review, the social sector agencies had been required to use CBAX for all initiatives from 2016 onwards.

The approach to the review is summarised in Figure 1 below.

**Figure 1 Our approach in 2021**

|                                      |  |                               |
|--------------------------------------|--|-------------------------------|
| Development                          | Review criteria and approach used in 2018                |                               |
|                                      | Review sample of 2018 assessment templates               |                               |
| Assessment                           | Initiatives assessed by both assessors separately        |                               |
|                                      | Assessor 1<br>General and environmental aspects          | Assessor 2<br>General aspects |
|                                      | Overall review and identification of issues and patterns |                               |
| Quality<br>Consistency<br>Robustness | Moderation and synthesis                                 |                               |
|                                      | Draft report   |                               |
|                                      | Peer review of process and draft report                  |                               |
|                                      | Revise and submit draft report to PCE                    |                               |
| Delivery                             | Finalise report  |                               |
|                                      | Presentations  |                               |

Source: NZIER

This review of budget initiatives was conducted by two expert assessors: One with generalist budget initiative experience and one with specialist environmental economics expertise. Both assessors also worked on the review of budget initiatives for the Treasury in 2018 so brought consistent judgement to the 2021 project.

### 2.1 The sample

We reviewed 18 budget initiatives from the 2019 and 2020 budget processes.

Initiatives included in this review spanned a wide range of interventions selected by the PCE from three case study agencies, including:

- two agencies from the natural resources sector
- one agency from outside this sector that routinely submits initiatives with environmental considerations.

The PCE formed a sample of environmentally relevant initiatives via stratified random sampling: by agency, by sub-agency (where relevant), and by year. In budget cycles where an agency submitted substantially more than three initiatives, stratifying by sub-agency allowed a range of initiatives to be sampled. While the resulting sample is not representative at the agency level in those instances, it has the benefit of capturing a range of initiative types.

## 2.2 The initiative assessment

The assessment of each budget initiative has three components:

- 1 Assessment against the 2018 assessment template with specific consideration of dimensions of analytical rigour, soundness of advice, and system insights and learning.
- 2 Scoring of overall quality, consistent with the 2018 scoring, on a scale of one to ten. which represents an overall quality assessment.
- 3 Specific consideration of the quality of advice on environmental aspects. This represents a new feature which was not included in the 2018 report, due to the specific interest in environmental aspects.

The assessment of the quality of advice on environmental aspects was undertaken by NZIER's environmental economics expert. This allowed the environmental aspects to be assessed in terms of what would be a reasonable expectation for a budget initiative, based on in-depth knowledge of what information and data is readily available and what techniques could be used to develop or adapt environmental values, taking into account the expected time and resource constraints of a budget initiative development process.

The specific questions relevant to the environmental aspects of initiatives were:

- Were all important environmental aspects included (including any identifiable and potentially significant negative impacts)?
- Were the environmental aspects well described?
- Were the environmental aspects well quantified?
- Were the environmental aspects monetised using appropriate techniques or values?
- If values were used from previously published reports, were these appropriate to context, were adjustments (Eg. scaling, benefit transfer) fair and reasonable?
- Did the initiative make use of readily available information and data on environmental aspects or were useful and accessible sources ignored?
- Did the initiative include appropriate approaches to consideration of environmental aspects where there are significant unknowns (Eg. Scenarios, reverse analysis)?

We scored each initiative out of 10. A score of 7 indicated that the initiative advice met our defined quality criteria sufficiently well to be helpful for Ministers.

In the context of budget initiatives, we determined this to mean that:

- The problem definition was clear.
- The nature of the intervention was clear.

- At least one major impact was both quantified and monetised, or, in cases where impacts could not be accurately quantified or monetised, the quantification and monetisation of a major impact was replaced with a thorough description of the impact and a sense of its magnitude or importance.

The requirement to identify, quantify and monetise impacts of budget initiatives is not insignificant. Budget initiatives often represent interventions at the frontier of public policy, where little is known about the size and value of potential impacts.

Where impacts can be identified, quantifying and monetising them is challenging even under ideal circumstances. For many impacts, no directly relevant values exist and conducting research to establish values would be outside of what can be achieved in a normal budget process.

Identifying and analysing impacts beyond their own sector requires expertise that most agencies lack. The ability to draw on other agencies' expertise is constrained by those agencies prioritising the preparation of their own initiatives.

These issues were taken into account in developing the scoring standard. Our scoring reflects an assessment of what was done against what would have been possible. This means that a score of 7 on an initiative with primarily environmental impacts will not generally indicate that the initiative has same level of quantitative and financial detail as a purely economic initiative that received the same score because the environmental initiative is likely to be subject to more data and information gaps.

As a result of these considerations, achieving a score of 7 generally requires low to moderate effort and should be possible for most budget initiatives.

The scoring scale is summarised in the table below.

**Table 2 Budget initiative scoring scale and interpretation**

| Score  | Interpretation   |
|--------|--|
| 1 to 3 | Seriously deficient in quality criteria and needs substantial reworking, possibly from scratch       |
| 4 to 5 | Deficient in a number of quality criteria and needs considerable improvement                         |
| 6      | Nearly 'across the line', and with relatively minor improvements could have met the quality criteria |
| 7      | Meets the quality criteria sufficiently (is of a suitable quality to send to the Minister)           |
| 8      | Exceeds a number of the criteria and represents good practice  |
| 9      | Exceeds standards on the majority of relevant criteria and can be considered best practice           |
| 10     | Exceeds standards on all relevant criteria and can be considered best practice                       |

Source: NZIER

### 3 Results

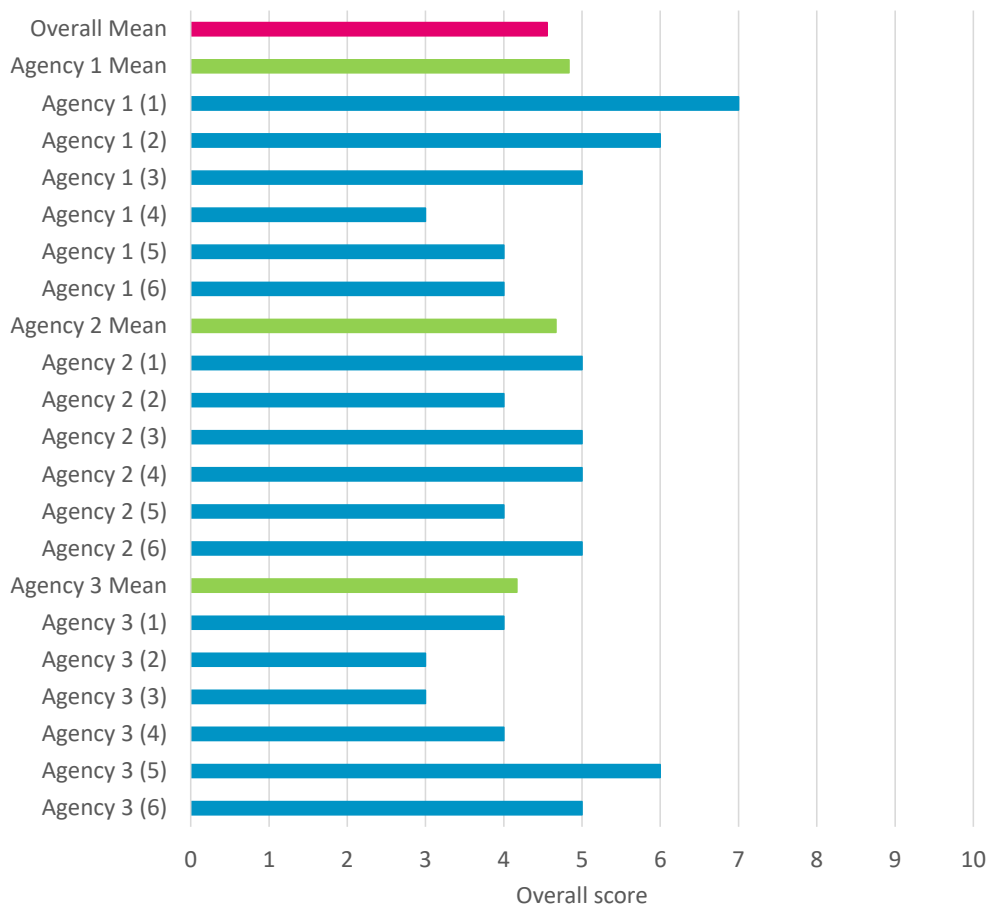
The overall scores for the 18 budget initiatives provided for this assessment are very low. The average score is 4.6, indicating that on average advice was deficient in a number of quality criteria and needed considerable improvement. The average score in this sample is lower than the average score in the 2018 sample, particularly compared with the most recent initiatives in that sample (The results of our 2018 review which saw the quality of advice improve over time to a mean score of close to 7 for agencies that were not using CBAX (see Appendix A)).

The range of results was from 3, where we judged the advice to be in need of a return to the very basic stages of identifying the problem and rationale for intervention, to 7, which meant the advice was of a suitable quality to send to the Minister. Only one initiative achieved a score of 7 and no initiative exceeded this score.

No significant difference is apparent between the mean scores of initiatives from each agency, with the means all being between 4 and 5.

**Figure 2 Overall scores of assessed initiatives with environmental considerations**

2019 and 2020 initiatives



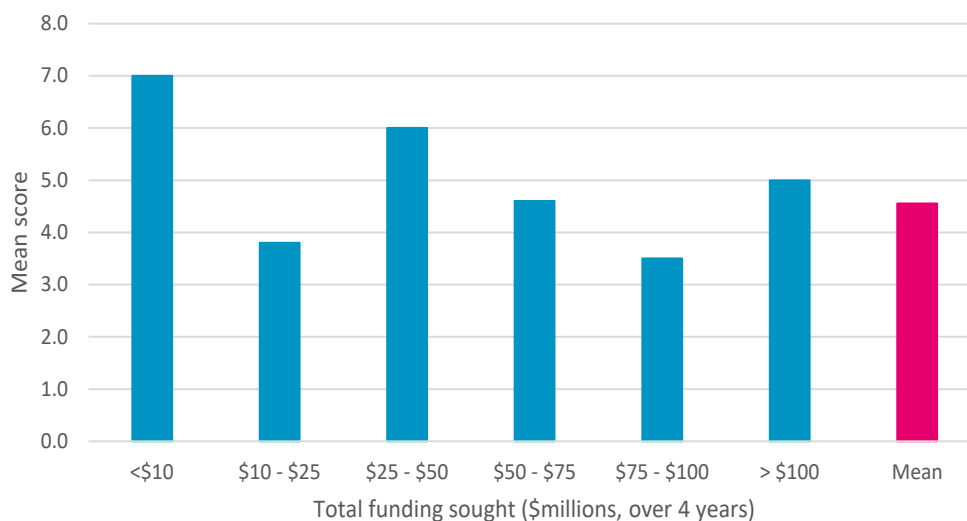
Source: NZIER

Given the results that were achieved by budget initiatives in our 2018 review, these scores are particularly low. This suggests that agencies completing budget initiative advice templates where there are environmental considerations may be disadvantaged in the budget process and require additional support to address the specific challenges of providing sound advice in this context.

No relationship between the amount of funding sought and the quality of advice was apparent.

**Figure 3 Overall scores of assessed initiatives by amount of funding sought**

2019 and 2020



Source: NZIER

## 4 Key insights

### 4.1 Key insights

Our overall conclusion is that budget initiatives with environmental considerations from the agencies included in this review are of lower quality to the general quality standard observed from other agencies.

Advice is weak with regards to almost all of the seven steps of CBA on which budget initiatives should be based as well as with regards to the environmental considerations.

Initiatives with similar scores tended to have similar weaknesses. This is due to the assessment of initiatives against a 7-step CBA process where poorly completed early steps result in an inability to complete the later steps. For example, if a problem is not well-defined, it is generally impossible to identify, let alone quantify and monetise impacts with any degree of confidence.

One area of strength that we noted was generalised effort to shift the focus away from the fiscal issues which dominated many budget initiatives in previous years. Genuine attempts to describe impacts in terms of dimensions of wellbeing, encouraged by the Treasury



template to do so, will have been helpful in shifting the basis for decision-making away from a simple consideration of costs and revenue to the Crown.

Specific issues identified include:

- General failure to follow the steps of a cost-benefit analysis (CBA) which should be followed for budget initiatives, regardless of whether monetisation is possible.
- Inadequate description of the problem, with insufficient clarity about the nature and size of the problem, who is affected and how, the cost of the problem, the causes of the problem and why existing measures are not adequately addressing it.
- Weak counterfactual description – what will happen if the initiative is not funded, who will be affected – essentially a dynamic view of the problem and its costs.
- Insufficient description or quantification of populations that are impacted, including particularly population sub-groups.
- Inadequate support of impact statements, problem costs, and impact mechanisms with appropriate and relevant evidence or failure to adequately describe and reference evidence when used.
- Inclusion of questionable impacts with no supporting evidence.
- Referring to previous cost-benefit analyses with no apparent consideration of applicability to the initiative.
- Under-developed options and scenarios.
- A tendency to justify proposed initiatives by citing very generalised “factoids” about environmental problems, rather than focusing on the specifics of incremental changes that can be addressed through the initiative.
- No evidence that the Treasury CBAX model or its Impacts Database were used to strengthen advice. Although not required, these tools are available for use. Although the impacts database is extremely limited with respect to environmental effects<sup>2</sup>, our previous review found that the CBAX model leads to better identification of populations impacted and the impacts database could have been used to monetise some non-environmental impacts.

## 4.2 Environmental specific issues

Environmental issues can be difficult to include in budget initiatives because of the lack of economic values to attach to their outcomes. In a quantified CBA, that can be worked around by quantifying and valuing all that is readily suited to doing so and inferring how big the unquantifiables would need to be to overturn a negative result into a positive outcome.

<sup>2</sup> The CBAX impacts database for December 2020 listed 14 values for aspects of impacts on the natural environment, mostly concerning waste disposal and urban development, including impacts on coastal and freshwaters and productivity impacts of agglomeration and congestion. At the time of the budget initiatives reviewed in this report, there was only one environmental value in the CBAX database, the cost of dealing with wilding pines. A wider range of values could be included, given suitable indication of the reliability of the values used. In 2018 NZIER prepared a report on *Benefit Transfer* for the Natural Resource Sectors Support Unit operating out of the Ministry for the Environment, which included a database of values of environmental effects and assessment of their quality and suitability for benefit transfer, which would translate well to the CBAX process of indicating the strength of evidence used to support budget initiatives. Unlike other work NZIER did for Treasury at the same time, on *Capturing Natural Capital in Decision Making* and *What's the Use of Non-use Values* which are currently on the Treasury website, the Benefit Transfer report does not appear to be on any agency's website or to have contributed to the CBAX impacts database.  
<https://www.treasury.govt.nz/sites/default/files/2018-08/LSF-capturing-natural-capital-in-decision-making.pdf>  
<https://www.treasury.govt.nz/sites/default/files/2018-08/LSF-whats-the-use-of-non-use-values.pdf>



That overturning value can then be compared with values from other environmental programmes to get some indication of whether it is reasonable.

In the initiatives examined here, the lack of CBAX application makes such assessment even more challenging. However, a larger issue than the lack of environmental values is not making the most use of the available value-relevant information, leaving decision-makers with little idea of the scale of what the initiative is trying to achieve.

Some of the initiatives in their introduction present justification in the form of “X is a big environmental problem and something must be done about it”. Fewer go the step further to identify the cause of the problem and tailoring the initiative to specific actions aimed at reducing the main drivers.

When statistics are quoted, they are generally about the aggregate size of the problem and are silent on the impact the initiative is likely to have at the margin. While some initiatives do describe in physical terms the outcome expected (e.g. areas of land receiving restorative treatment), there is little attempt to compare these with previous programmes with similar scope to see how the current programme delivers comparable value for money.

Another issue with some initiatives is the bundling together of quite different activities, which ideally would warrant separate financial analyses to assess the net worth of each component part and the incremental effect of removing individual parts from the whole. There is a risk in bundling of lack of transparency allowing weaker initiatives to be accepted on the coattails of stronger ones; alternatively, of uncertainty about the contribution of different components causing the whole bundled package to be rejected.

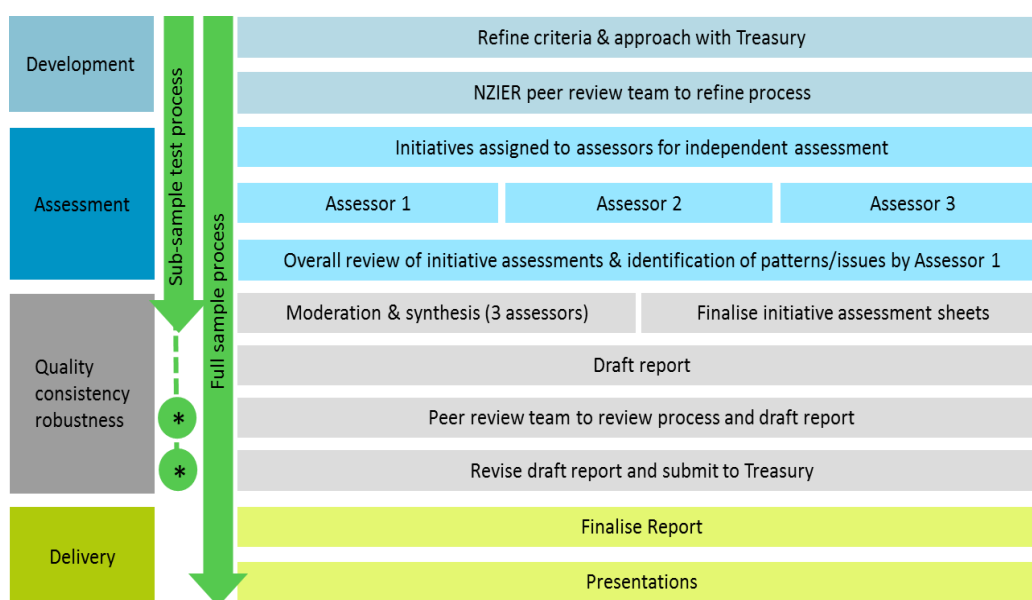
Even in the absence of reliable valuation of environmental effects, the discipline of putting initiatives through the CBAX process would put focus on marginal effects and improve the presentation of initiatives.



# Appendix A

The assessment process agreed with the Treasury, is illustrated in Figure 4 below.

**Figure 4 Our approach in 2018**



Source: NZIER, 2018

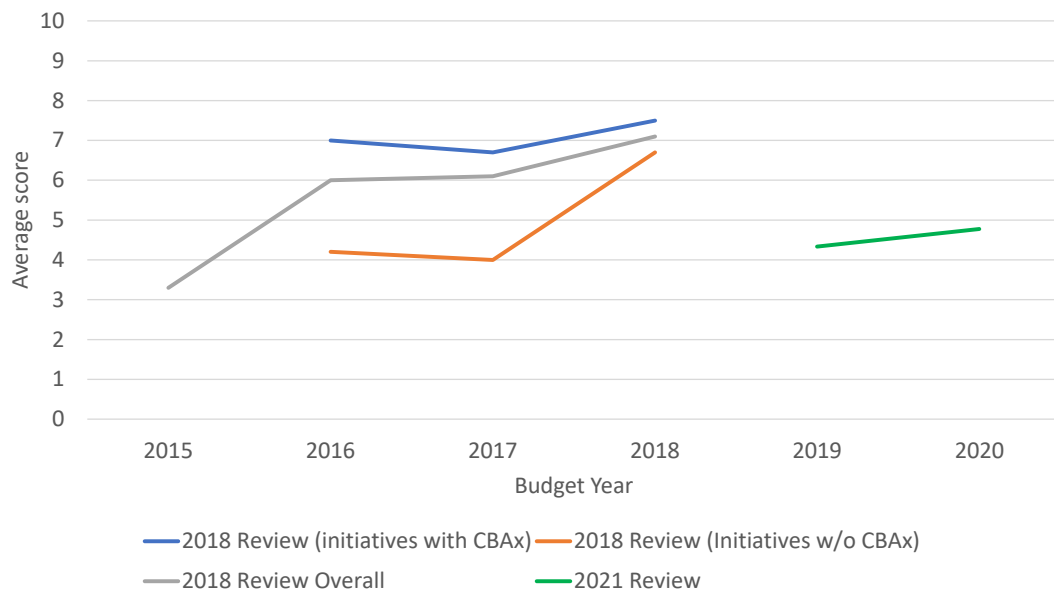
That assessment showed that:

- On average, initiatives developed with CBAX achieved higher scores for the quality of advice.
- On average, agencies that used CBAX to develop budget initiatives provided better quality advice than those which didn't use CBAX.
- On average, the quality of advice improved over time for both groups – those that used CBAX and those that didn't).
- Compared with the sample assessed in 2018, the sample assessed in 2021 had a lower average score.

(see Figure below)



**Figure 5 Trends in mean scores from the 2018 review and the 2021 review**  
2015-2018 and 2019-2020



Source: NZIER

