Parliamentary Commissioner for the Environment
Te Kaitiaki Taiao a Te Whare Pāremata

Submission on Infrastructure for a Better Future

June 2021

Submitter details

This submission is from the Parliamentary Commissioner for the Environment, Simon Upton.

The Parliamentary Commissioner for the Environment is an independent Officer of Parliament established under the Environment Act 1986. The Commissioner has broad powers to investigate environmental concerns and make recommendations to improve environmental outcomes. He is wholly independent of the government of the day.

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Introduction

I would like to commend the Infrastructure Commission for making the environment a top priority and placing it front and centre of building infrastructure for a better future. There is much in this consultation document that will, if implemented, make important contributions to improving the environmental outcomes for Aotearoa. This is particularly important considering the scale of infrastructure investment that is required to enable us to make the transition to a net zero carbon economy and still accommodate growth.

Recommendation

I recommend that as the commission finalises its strategy, it retains the environment as a top priority. The following points should be implemented by the commission to help further improve the effectiveness of environmental considerations in infrastructure decision making.

Cost reflective pricing

In general, I support the use of cost reflective pricing and other user-pays mechanisms to appropriately price both new and existing infrastructure. Market-based mechanisms like congestion pricing, on-street parking charges, improved water metering and cost-reflective waste-disposal charges will improve efficiency, reduce waste and reduce peak constraints on critical infrastructure, ultimately reducing our impact on the environment.

However, we can do more. Effectively incorporating the costs to the environment in infrastructure pricing, such as biodiversity loss, environmental pollution and loss of natural habitat, is essential if we are to reverse the alarming decline of native species and our loss of natural habitat caused by human development. A work programme to establish consistent and robust estimates for a range of different environmental values needs to be developed for use across different government agencies to incorporate the economic value of natural capital and associated ecosystem services in the decision-making process.

Climate change

Including the full social cost of carbon in infrastructure business case appraisals will improve decision making by properly incorporating the future costs of climate change. This is particularly important for long-lived infrastructure that can potentially lock in emissions over long time horizons. It is therefore imperative that both existing and new infrastructure is fit for purpose for the transition to a net zero economy.

Infrastructure not only has an impact on the climate through the emissions it enables but will also be affected by climate change as extreme weather events increase in both severity and frequency into the future. Because infrastructure is long lasting, it is important that no new infrastructure is developed that is *not* compatible with a net zero economy. For existing infrastructure that is not compatible with a net zero future, plans will need to be developed for transforming this infrastructure so that it is net zero compliant.

I support a resilience 'bright-line' test (pass/fail) and use of methods to ensure that climate uncertainty and population growth are appropriately incorporated in infrastructure decision making (e.g. through scenario analysis). This allows risk and resilience to be considered upfront while ensuring future infrastructure options are adaptable under alternative futures.

It is also important that scenarios are developed to consider the future effects of climate change considering both physical risks and transition risks under different climate mitigation pathways. Best practice would see the adoption and application of scenarios using the guidelines recommended by the Financial Stability Board's Task Force in their work programme for Climate-related Financial Disclosures (TCFD).[1] The TCFD recommendations need to be applied to each infrastructure project so that stranded asset risk and climate hazard risk are identified and minimised.

Cost benefit analysis

Cost benefit analysis is an important policy decision-making tool for determining if the benefits of government expenditure outweigh its costs. However, owing to the way discount rates are presently applied in New Zealand, cost benefit analyses do not adequately consider the full costs and benefits to the environment which occur over longer time horizons. I therefore fully endorse the recommendation to undertake an inquiry into the appropriateness and consistent application of New Zealand's social discount rate policy.

At present the default discount rate recommended for use by the Treasury for assessing general projects (including infrastructure) is five per cent. Five per cent is high by international standards for a high income country like New Zealand. While it is widely used for projects of shorter duration, it is, in my view, not appropriate when considering costs and benefits over a longer time horizon, particularly when assessing impacts to the environment or the costs and benefits pertaining to infrastructure.

If the benefits of natural capital are to be appropriately captured in decisions taken today, we need a discount rate methodology that adequately values the benefits and accounts for the costs for both the short *and* longer term. A reconsideration of the application of social discount rates in New Zealand should therefore be prioritised. One method to consider is a time varying discount rate, also known as hyperbolic discounting.

At present, discount rates are applied at a constant proportionate rate and typically over a period of thirty years or less. This method is referred to as constant exponential discounting. Under this method, even when discount rates are relatively small, they place greater emphasis on the initial costs and

[1] https://www.fsb-tcfd.org/.

result in very low values being placed on future outcomes, which converge to zero over relatively short time periods.

In practical terms it means that future costs and benefits stop being considered as important to the policy maker. This means it would *not* be worthwhile incurring small costs today to mitigate emissions that will contribute to potentially catastrophic climate change and its associated costs in the distant future. For example, the installation of electric vehicle charging infrastructure is likely to incur considerable upfront capital costs. However, the benefits in terms of avoided emissions from zero emissions electric vehicles will only be realised over the long term.

By contrast, hyperbolic discounting applies a progressively lower rate as the benefits and costs become more distant in the future. Because future time periods are discounted less, the time horizon over which policy options are considered can also be extended, allowing for the consideration of impacts much further into the future.

Adopting a longer term view of the costs and benefits that are made to the natural environment is also in line with Māori who, taking an intergenerational view, will often look out 100 or even 1,000 years into the future. The adoption of hyperbolic discounting would go some way to incorporating the future value provided by environmental and infrastructure services from a te ao Māori perspective.

Over the last decade several European countries, such as the United Kingdom, France, Denmark and Norway, have adopted hyperbolic discount rates as their default guidance for public sector cost benefit analysis. An example for the hyperbolic discount rate methodology is provided in the table below for the United Kingdom.[2] Under guidance from the Green Book, costs and benefits occurring in the first thirty years of a programme are discounted at 3.5 per cent and then a schedule of declining discount rates is implemented thereafter.

Table 1 – Standard Green Book discount rate

Period of years	0–30	31-75	76–125	126–200	201–300	301+
Discount rate	3.5%	3.0%	2.5%	2.0%	1.5%	1.0%

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[2] Intergenerational wealth transfers and social discounting. Supplementary Guidance. (2013) https://www.gov.uk/government/publications/green-book-supplementary-guidance-discounting