Waihi North Project Fast-Track

Coromandel Watchdog of Hauraki Specialist Memo

Economics

Dr Richard Meade

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Contents

1. Introduction

1.1 Scope of this Memorandum

1. I have been asked by Coromandel Watchdog of Hauraki to assess the economic analysis (**the Analysis**) provided by Eaqub & Eaqub Limited on behalf of OceanaGold New Zealand Limited (**the Applicant**) in support of the Waihi North Project application (**the Application**) for an extension of gold mining operations at Waihi (**the Project**).

2. In particular, I have been asked whether, in my opinion as an expert economist, the Analysis credibly and robustly demonstrates significant regional or national benefits as required under the Fast-track Approvals Act 2024 (**FTA**), and whether there are material adverse effects arising from the Project either not or inadequately accounted for in the Analysis.

1.2 Background, Experience and Code of Conduct

3. I am a professional economic consultant and researcher with 33 years' experience in providing economic and/or financial analysis and advice. My primary professional role is as Principal Economist at Cognitus Economic Insight, an economic consulting and research practice I founded in 2002. Since 2023 I have been an Adjunct Associate Professor at Griffith University, and was appointed a Lay Member of the High Court for Commerce Act matters in 2024. In June I retired after being on the organising committee of the Law & Economics Association of New Zealand for 10 years, having been president for three years, and Auckland vice president for six years.

4. Prior to founding Cognitus, I was an investment banker with Credit Suisse First Boston (1992-1998), through which I was a valuation and corporate finance specialist. I have also taught undergraduate and MBA finance and/or corporate finance for Victoria University of Wellington in New Zealand and Hong Kong multiple times, and completed a graduate-level course in finance as part of my PhD (further details below).

5. I have also been a Research Principal at the New Zealand Institute for the Study of Competition and Regulation (2001-2011), and a Senior Research Fellow at Auckland University of Technology (2015-2025). In addition to teaching finance or corporate finance, I have also lectured in industrial organisation and/or environmental economics at Auckland University of Technology and University of Auckland multiple times.

6. I hold the following qualifications: a PhD (awarded with Distinction) in industrial organisation and regulation, as well as an MPhil and MSc in economic theory and econometrics, all from Toulouse School of Economics. I also hold a BSc (Hons, First Class) in statistics and operations research (including papers in economics and finance), a BSc in statistics and operations research, and a BCA in economics and finance, all from Victoria University of Wellington.

7. I belong to multiple professional and academic associations, including the Law & Economics Association of New Zealand (Member), Competition Law & Policy Institute of New Zealand (Member), Asia-Pacific Industrial Organisation Society (Member), New Zealand Association of Economists (Member), and the New Zealand Institute of Forestry (Ordinary Member).

8. Relevant examples of my work for this exercise include:

    8.1. Providing economic advice to a company with international mining interests;

    8.2. Undertaking numerous and often-times complex financial evaluations;

    8.3. Applying the total economic value (**TEV**) framework for describing and categorising the full range of economic values that attach to a given activity or resource, and also non-market valuation (**NMV**) techniques for ascribing monetary values to product or service attributes that are not traded in markets and hence which lack identifiable market prices;

    8.4. Providing expert economic evidence (including for multiple landmark cases) in the High Court, Waitangi Tribunal, and Environment Court – in the latter case, including in relation to clause 3.10 of the National Policy Statement for Highly Productive Land;

    8.5. Undertaking various studies for the Ministry for the Environment and/or Māori peak bodies on climate change policy and the transition to net zero in multiple sectors, and in particular how it affects Māori landowners (especially given the strong primary sector interests of Māori, and the cultural and socio-economic importance of whenua Māori);

    8.6. Assisting Māori peak bodies with their engagement with the Ministry for the Environment regarding the reform of the RMA (under both the previous and current governments), including a particular focus on Māori rights and interests in freshwater;

8.7. Undertaking research on how land use is affected when land provides cultural services as well as commercial value, as well as research more broadly on the role of cooperative ownership in affecting business viability and behaviour.

9. I confirm that I have read the Environment Court Practice Note 2023 – Code of Conduct for Expert Witnesses (**Code**), and have complied with it in the preparation of this memorandum. I also agree to follow the Code when participating in any subsequent processes, such as expert conferencing, directed by the Panel. I confirm that the opinions I have expressed are within my area of expertise and are my own, except where I have stated that I am relying on the work or evidence of others, which I have specified.

1.3 Documents Reviewed

10. In preparing this memorandum, I have reviewed the following:

10.1. A report prepared by OceanaGold (New Zealand) Limited dated April 2025, Part A – Substantive application report (**Substantive Application Report**);

10.2. A report by Eaqub & Eaqub Limited dated 21 February 2024, *Sunfield Application Economic Assessment* (**Eaqub Report**);

10.3. Bond and trust fund conditions as set out in a document entitled *Waihi North Project – Schedule 1: Proposed Conditions Common to the Hauraki District Council and Waikato Regional Council Resource Consents* (**Bond and Trust Fund Conditions**); and

10.4. Other documents and materials as referenced throughout this report.

1.4 Summary of Main Conclusions

11. In the following sections I set out my detailed assessment of the Analysis. By way of summary, it is my opinion that:

11.1. Any assessment of whether the Project gives rise to significant regional or national benefits necessarily requires a cost-benefit analysis (**CBA**), not an economic impact analysis (**EIA**) as provided in the Analysis;

11.2. Even if EIA is accepted as a legitimate approach for assessing the Project's benefits, the particular approach adopted has inherent limitations that mean it

systematically overstates the relevant benefits, which could be remedied by using an alternative EIA methodology that does not share those limitations;

11.3. Irrespective of whether CBA or EIA is used to assess the Project's benefits, those benefits ought to be net of any relevant direct or indirect costs, meaning that regional benefits can only arise if net inter-regional benefits can also be demonstrated, including consideration of spillover effects (positive or negative) with other regions;

11.4. In any case, any meaningful assessment of the Project's benefits must be relative to an appropriately-defined counterfactual (i.e. what happens absent the Project being fast-tracked), which the Analysis has not done;

11.5. The Analysis has not appropriately adjusted for the timing and risks of the Project's purported benefits (and claiming employment benefits from the Project's development phase in particular is problematic, since it suggests inefficient developments – with high levels of development employment – are somehow more beneficial than efficient ones that require lower employment);

11.6. The Analysis has not adequately addressed potentially critical uncertainties and risks relating to the realisation of the Project's benefits and possible adverse effects, with the latter notably relating to uncertain but plausible long-term catastrophic risks relating to Project features such as mine tailings facilities;

11.7. Certain costs/adverse effects have not been adequately addressed in the Analysis, including:

11.7.1. Costs relating to omitted environmental costs – such as risk of overflows, risk of spillage or breach from tailings facilities, risks of rock stack or pit lake failures, and risk of harm to at-risk native fauna;

11.7.2. Loss of amenity relating to Coromandel Forest Park;

11.7.3. Loss of highly-productive land (**HPL**) for land-based primary production (**LBPP**); and

11.7.4. Socio-economic costs – pressure on housing costs, loss of sense of place, and reduced environmental quality due to increased traffic movements;

11.8. Certain benefits of the Project have been overstated, including:

11.8.1. Upward bias of benefits estimated using input-output multiplier analysis;

11.8.2. Upward bias due to counting Project costs as benefits;

11.8.3. Mischaracterisation of foreign direct investment as an outright Project benefit;

11.8.4. Mischaracterisation of the Analysis' assumed gold price as conservative;

11.8.5. Failure to account for the timing and riskiness of purported Project benefits;

11.8.6. Failure to account for leakage of purported Project benefits to overseas parties; and

11.8.7. Suggested double-counting of purported Project benefits.

12. In conclusion, it is my opinion that:

12.1. The Analysis has used a methodology that inherently overstates the Project's benefits;

12.2. Any assessment of the Project's benefits requires a full CBA, including suitable sensitivity analysis and scenario modelling to test the importance to claimed benefits of key uncertainties, which have not been provided;

12.3. The Analysis fails to properly define the Project's counterfactual, does not properly assess all relevant costs/adverse effects, and overstates certain of the purported benefits;

12.4. Even if the purported benefits of the Project materialise, they are not germane at the Hauraki District level for FTA purposes, particularly modest at even the regional (Waikato) level, and essentially immaterial at the national level; and

12.5. Hence, the Application's purported benefits have not been credibly and robustly established, and certainly not to the level of demonstrating significant regional or national benefits as required under the FTA.

2. Methodology for Assessing Regional or National Benefits

2.1 Necessity of Using Cost-Benefit Analysis, Not Economic Impact Analysis

13. Following Treasury guidance, and based on my own assessment – for the purposes of sound economic decision-making – any assessment of whether the Project gives rise to significant regional or national benefits as required under the FTA necessarily requires a cost-benefit analysis (**CBA**), not an economic impact analysis (**EIA**) as provided in the Analysis:

    13.1. Such a CBA measures the net benefits of an undertaking like the Project, being the total incremental benefits of the Project, less its total incremental costs (including opportunity costs, and both indirect costs and benefits as well as direct ones), appropriately adjusted for time and risk, and allowing for any salient distributional impacts;

    13.2. By contrast, EIA purports to measure the economic *impact* of the Project, not its *benefits* (and hence not its contribution to social wellbeing) *per se* – including by treating Project costs as benefits,[1] even if national wellbeing could be improved by allocating fewer resources elsewhere.[2]

14. Indeed, Treasury – as steward of limited public finances, and charged with ensuring those finances are used efficiently and equitable to maximise social welfare (i.e. national benefits) – argues for the use of CBA as follows:[3]

    14.1. "[A]ll advice that is aimed at helping decision-makers make a decision, should adopt a CBA framework as an organising principle"; and

    14.2. Investment in systematic CBA is justified whenever decisions impact on large numbers of people.

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[1] The classic example of EIA indicating a benefit, when society is not in fact made better off by the relevant activity, is paying a person to dig a hole and then to fill it in again. This is counted as a gain under EIA, but not under CBA.

[2] Treasury, 2015, *Guide to Social Cost Benefit Analysis*, July, at p. 54.

[3] Treasury, 2015, *Guide to Social Cost Benefit Analysis*, July, at p. 39.

15. By contrast, Treasury notes the following additional shortcomings of EIA (which measures components of GDP):[4]

    15.1. It does not measure social welfare *per se* (even if it proxies for social welfare);

    15.2. It makes no inherent distinction between economic impact accruing to local parties and economic impact accruing to overseas parties;

    15.3. It ignores non-market effects, which can be socially important; and

    15.4. It offers no insight as to any distributional concerns – i.e. whether resources are allocated to groups deemed in need of greater access than others.[5]

16. Treasury concludes that "EIA can provide useful contextual information for decision-makers, but it is not suitable as a tool for measuring the balance of costs and benefits of a decision to society"[6] [emphasis added]:

    16.1. This appears highly pertinent to assessing FTA applications.

17. In the present context, a CBA for the Project would compare the benefits of the proposed Project (e.g. the extra benefits to Waikato or New Zealand parties from extended gold mining activities at Waihi) with the costs of realising those benefits (counting development costs (including employment-related costs), and any other direct or indirect/opportunity costs associated with the Project, as costs, instead of economic impact) – relative to what those benefits and costs would be absent the Project (discussed further in Section 2.5).

18. Failing to assess the Project in terms of its net social benefits under a CBA framework risks misallocating national resources, with purported regional or national benefits potentially being lower – and distributed more inequitably – than what could be achieved through more efficient and equitable use of resources (as might be identified using CBA).

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[4] Treasury, 2015, *Guide to Social Cost Benefit Analysis*, July, at p. 47.

[5] This latter issue can be partially addressed through an alternative approach involving a social accounting matrix (**SAM**). The Analysis does not apply this approach, and even this alternative approach is subject to inherent limitations of multiplier-based EIAs, as discussed in Section 2.3.

[6] Treasury, 2015, *Guide to Social Cost Benefit Analysis*, July, at p. 39.

19. I consider a full CBA of the Project to be feasible, and warranted given its scale, and possibly material adverse effects (discussed further below).

2.2 Necessity of Allowing for Full Range of Benefits and Costs

20. The Analysis considers only a very narrow range of benefits. In particular, it considers a subset of what might be called "market-based" benefits, such as extra employment and associated expenditure, extra royalties and taxes, etc.

21. Subject to appropriate definition and measurement, market-based benefits are indeed relevant, but only a subset of the full range of benefits has been identified in the Analysis:

    21.1. Moreover, costs (including both direct costs, and indirect/opportunity costs – e.g. foregone other benefits) have not been explicitly considered, and certain costs are counted as benefits (see further below).

22. Importantly, the Project can be expected to have a range of "non-market" (foregone) benefits and costs, which the Analysis has not explicitly accounted for. Unlike market-based values, which relate to things (like commodities, or labour) that are traded in markets and which can be valued by reference to market prices, non-market goods or services are not traded in markets:

    22.1. This does not mean non-market goods or services are unimportant (publicly-provided health or education services are a prominent example), but rather that their value is often overlooked or incompletely assessed because it is not possible to use market prices to estimate their value;

    22.2. Such non-market costs/benefits are typically not immaterial just because they lack market prices – according to a prominent study assessing non-market values of New Zealand's land-based ecosystems, those non-market values can be at least as great as their market values.[7]

23. A framework commonly used by economists to characterise the full range of both market and non-market values is the so-called Total Economic Value (**TEV**) framework:[8]

[7] Patterson and Cole, 2013, *'Total Economic Value' of New Zealand's Land-Based Ecosystems and their Services.*

[8] A survey of the TEV literature is provided in NZIER, 2018, *What's the Use of Non-Use Values?*

23.1. For example, the TEV framework can be used to characterise the full range of values that can be attached to things like natural resources;[9]

23.2. Relatedly, economists have developed an extensive range of sophisticated non-market valuation (**NMV**) techniques to objectively estimate people's subjective non-market values.

24. A 2018 Treasury discussion paper applies the TEV framework to the valuation of natural capital (i.e. minerals, energy resources, land, soil, water, trees, plants and wildlife),[10] stating that the "general framework has been recognised for the past 30 years".[11]

25. In short, the TEV framework recognises that the value attaching to any given resource (e.g. minerals) is not confined to the value that can be realised in a market exchange of that resource or the commercial produce it can sustain, but can either:

25.1. Sustain a range of co-existing and additive other values (e.g. social, environmental or cultural values), even if market prices do not exist to directly quantify those other values; or

25.2. Conflict with those other values – i.e. creating non-market opportunity costs.

26. While there are numerous variants of the TEV framework applied in practice,[12] Figure 2.1 illustrates one such variant, based on a prominent study assessing TEV for New Zealand's land-based ecosystems.[13] Importantly, the Analysis:

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[9] It is also increasingly being used to assess cultural value. For a survey, see Allan et al., 2013, Value and Culture, Motu Working Paper 13-09.

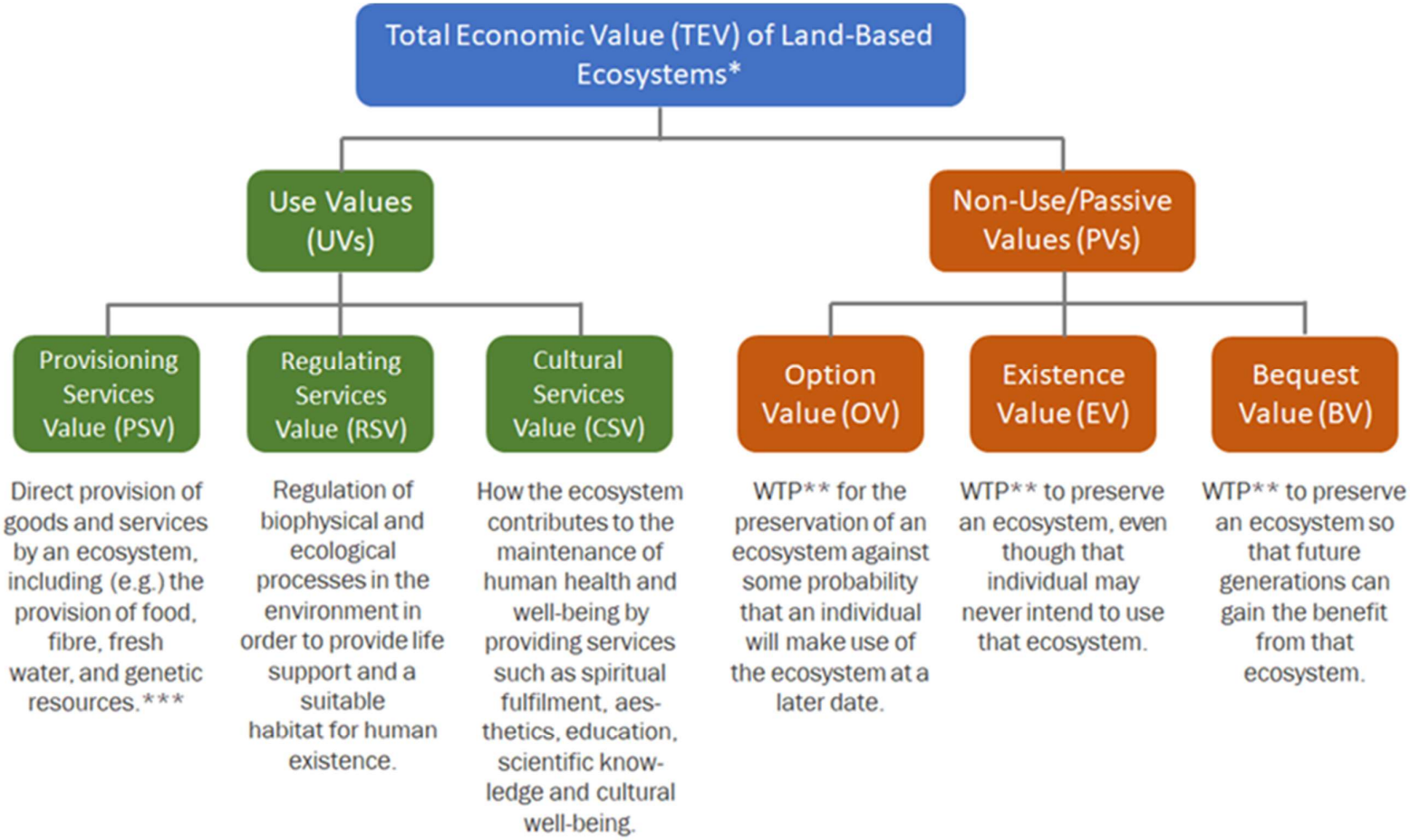
[10] van Zyl and Au, 2018, *The Start of a Conversation on the Value of New Zealand's Natural Capital*, Treasury Discussion Paper 18/03.

[11] van Zyl and Au, 2018, *The Start of a Conversation on the Value of New Zealand's Natural Capital*, Treasury Discussion Paper 18/03, at p. 7.

[12] For multiple examples, see van Zyl and Au, 2018, *The Start of a Conversation on the Value of New Zealand's Natural Capital*, Treasury Discussion Paper 18/03, Appendix 1, at pp 36-39.

[13] Patterson and Cole, 2013, *'Total Economic Value' of New Zealand's Land-Based Ecosystems and their Services*.

Figure 2.1 – Total Economic Value (TEV) Framework as Applied to New Zealand's Land-Based Ecosystems by Patterson and Cole 2013



Notes: * based on Patterson and Cole 2013, at pp 499-500. ** WTP = willingness to pay. *** Usually measured in gross domestic product (GDP), but some PSVs are not because they involve no market exchange (e.g. collecting firewood for one's own use).

Source: Author's adaptation of Patterson and Cole 2013.

26.1. Considers only benefits relating to what Figure 2.1 characterises as just a subset of use value relating to the Project resources, namely provisioning services value;

26.2. Does not consider the benefits – or in this case, possible foregone benefits (i.e. opportunity costs) – relating to other use values (regulating services value, and cultural value), or non-use values (option, bequest and existence values).

27. Notable in relation to the latter – as discussed further below – are possible adverse effects of the Project:

27.1. On Waihi housing availability and costs;

27.2. On particular native fauna – e.g. at-risk skinks and frogs; and

27.3. Due to long-term environmental risks associated with mine tailings.

28. Where the Analysis does provide for such opportunity costs, it does so only indirectly, and by inappropriately characterising the costs of avoiding, remedying or mitigating for such opportunity costs as Project benefits.

2.3 Multiplier-Based Economic Impact Analysis Has Known Limitations Leading to Overstated Benefits, Which Alternative Methods Avoid

29. Even if an EIA were deemed appropriate for establishing significant regional or national benefits, this requires use of an approach that more properly assesses the flow-on economic impacts of the Project than the method used in the Eaqub Report. That method – input-output (**I-O**) multiplier analysis – has widely-acknowledged limitations due to the restrictive and unrealistic assumptions it is based upon, and systematically overstates economic benefits due to those limitations.[14]

[14] For example, see Counsell, K., 2024, "Improving economic analysis in environmental decision-making: a tale of two coal mines", *Resource Management Journal*, August. A more comprehensive discussion of I-O multipliers and their alternatives for economic impact analysis is given in Dwyer, L., Forsyth, P. and W. Dwyer, 2020, chapter 9, "The Economic Impacts of Tourism", *Tourism Economics and Policy*, Channel View Publications.

30. For example, the Australian Bureau of Statistics (**ABS**) ceased publishing I-O multipliers over 20 years ago due to the method's unrealistic assumptions and inherent bias, stating:[15]

> "Production of multipliers was discontinued with the 2001–02 issue for several reasons. There was considerable debate in the user community as to their suitability for the purposes to which they were most commonly applied, that is, to produce measures of the size and impact of a particular project to support bids for industry assistance of various forms. …
>
> "I–O multipliers are most commonly used to quantify the economic impacts (both direct and indirect) relating to policies and projects. While their ease of use makes I–O multipliers a popular tool for economic impact analysis, they are based on limiting assumptions that results in multipliers being a biased estimator of the benefits or costs of a project." [emphasis added]

31. The ABS summarises the "inherent shortcomings and limitations of multipliers for economic impact analysis" as follows:[16] [underlining added]

31.1. **Lack of supply–side constraints:** The most significant limitation of economic impact analysis using multipliers is the implicit assumption that the economy has no supply–side constraints. That is, it is assumed that extra output can be produced in one area without taking resources away from other activities, thus overstating economic impacts. The actual impact is likely to be dependent on the extent to which the economy is operating at or near capacity.

31.2. **Fixed prices:** Constraints on the availability of inputs, such as skilled labour, require prices to act as a rationing device. In assessments using multipliers, where factors of production are assumed to be limitless, this rationing response is assumed not to occur. Prices are assumed to be unaffected by policy and any crowding out effects are not captured.

31.3. **Fixed ratios for intermediate inputs and production:** Economic impact analysis using multipliers implicitly assumes that there is a fixed input structure in each industry and fixed ratios for production. As such, impact analysis using multipliers can be seen to describe average effects, not marginal effects. For example,

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[15] https://www.abs.gov.au/ausstats/abs@.nsf/Previousproducts/5209.0.55.001Main%20Features42009-10.

[16] https://www.abs.gov.au/ausstats/abs@.nsf/Previousproducts/5209.0.55.001Main%20Features42009-10.

increased demand for a product is assumed to imply an equal increase in production for that product. In reality, however, it may be more efficient to increase imports or divert some exports to local consumption rather than increasing local production by the full amount;

31.4. **No allowance for purchasers' marginal responses to change:** Economic impact analysis using multipliers assumes that households consume goods and services in exact proportions to their initial budget shares. For example, the household budget share of some goods might increase as household income increases. This equally applies to industrial consumption of intermediate inputs and factors of production.

31.5. **Absence of budget constraints:** Assessments of economic impacts using multipliers that consider consumption induced effects (type two multipliers) implicitly assume that household and government [e.g. local government] consumption is not subject to budget constraints.

31.6. **Not applicable for small regions:** Multipliers that have been calculated from the national I–O table are not appropriate for use in economic impact analysis of projects in small regions. For small regions multipliers tend to be smaller than national multipliers since their inter–industry linkages are normally relatively shallow. Inter–industry linkages tend to be shallow in small regions since they usually don't have the capacity to produce the wide range of goods used for inputs and consumption, instead importing a large proportion of these goods from other regions.

32. Notably, for the Project:

32.1. The Analysis does not apply pro-forma national I-O multipliers, and thereby might resolve the small regions limitation discussed above;

32.2. However, the Analysis' methodology not allowing for supply–side constraints means that competition for things like (skilled) labour, materials, or temporary accommodation for development and other workers – if there is not significant excess capacity for those things – might simply displace economic activity elsewhere:

32.2.1. In particular, where local labour is not available for the Project – especially for peak employment loads associated with mine development – this could either displace labour from other regions, drive up labour costs, and/or be resolved using overseas (e.g. fly-in-fly-out) labour for which employment returns principally accrue overseas;

32.3. Likewise, due to implicitly assuming fixed input prices, the Project's purported impact may turn out to be much less beneficial than as assessed if competition for things like (skilled) labour or temporary accommodation for development and other workers bids up prices such as wages and rents:

32.3.1. Price rises like these will result in lower increases in activity, and could even crowd out activity in other sectors or developments;

32.3.2. In particular, any peak influx of extra workers – which Figures 9-11 of the Analysis highlight in the Project's first 10 years – should be expected to exacerbate already constrained housing supply in Waihi and environs, which the Substantive Application Report acknowledges as a negative social effect even after measures to avoid, remedy or mitigate that effect.[17]

33. Given these limitations, Treasury guidance when assessing project proposals is that I-O multipliers of the sort used in the Analysis of the Project should be ignored unless there is significant unemployment (I would add, or other significant spare capacity – e.g. in accommodation for development workers, etc) in the economy:[18]

33.1. This means, at best, the Project's assessed value is at most that assessed in the Analysis;

33.2. In reality, since the Analysis measures only gross economic impact, and does so using I-O multipliers, its assessment of the Project's economic impact will *overstate* the Project's actual benefits.

34. A technique better suited to assessing the economic impact of the Project is computable general equilibrium (**CGE**) analysis. Unlike I-O multipliers-based EIA, CGE more

[17] Substantive Application Report, at pp 526-527 and 531.

[18] Treasury, 2015, *Guide to Social Cost Benefit Analysis*, July, at p. 16.

comprehensively and realistically accounts for how an economic stimulus ripples through other parts of the economy (either by sector or region), including by allowing for constraints in the supply of labour, housing (etc), and also allowing for prices to adjust in response to the proposed stimulus:

34.1. In my opinion, if EIA is deemed appropriate, it is necessary – as well as appropriate and feasible – to undertake a full CGE analysis of the Project's regional and national impacts;

34.2. By better accounting for regional and economy-wide feedback loops than I-O multipliers-based EIA, CGE analysis would better identify whether the Project gives rise to net regional benefits, and also net national benefits (discussed further in the following section).

2.4 Net Benefits – Not Gross – are Required for Sound Economic Decision-Making

35. Whether the Project's benefits are assessed using CBA or EIA (including whether any EIA is based on I-O multipliers or CGE analysis), it is imperative that any purported regional or national benefits are *net* benefits – not *gross* benefits as assessed in the Analysis.

36. As such, it is not clear that the Project's assessed benefits represent a net gain to the Waikato region:

36.1. It is probable – for the reasons discussed in Section 2.3 – that the Project could displace economic activity from other parts of the Waikato region, meaning that its economic impact proves to be far less than claimed.

37. Similarly, even if the Project does lead to a net benefit to the Waikato region, the analysis does not reveal whether that comes at a cost to other regions (e.g. due to redirecting resources or economic activity from those other regions):

37.1. As such, to demonstrate regional (net) benefits, in my opinion it is further necessary to also assess inter-regional (net) benefits – to show that purported (net) benefits to a particular region have not come at the expense of offsetting costs to other regions;

37.2. Absent such an assessment of inter-regional (net) benefits, the level of any purported regional (net) benefits ought to be viewed with caution.

38. As above, failing to account for all relevant costs of the Project, and assessing only its gross benefits, risks socially-harmful decisions being reached – i.e. by prioritising a project with positive gross benefits which might have negative net benefits, or at least smaller net benefits than other projects (that have lower gross benefits, but larger net benefits).

2.5 Benefits Can Only Meaningfully Be Measured Relative to An Appropriate Counterfactual

39. Whether the Project's benefits are assessed using CBA or EIA (including whether any EIA is based on I-O multipliers or CGE analysis), it is imperative that that any purported regional or national benefits are measured relative to an appropriately defined counterfactual – i.e. relative to what would happen if the Applicant's FTA application is not granted.

40. Indeed, Treasury identifies that the very first step in evaluating a project proposal is to identify a suitable counterfactual,[19] defining the counterfactual to be "the situation that would exist if the [project approval is not given], if the [project] does not go ahead."[20]

40.1. New Zealand Transport Agency/Waka Kotahi does likewise in its well-established framework for transport-related CBA, stating:[21]

> "There should be careful consideration of what the counterfactual is, as this is what the activity will be measured against. Overstating or understating the counterfactual can have an adverse effect on the CBA. Effort should therefore be applied early in the development of the analysis to define the future state if an activity did not proceed in order to establish a realistic baseline that options can be assessed against."

41. As discussed further below, the Analysis assumes an overly-narrow counterfactual, and one which fails to reflect the FTA context.

[19] Treasury, 2015, *Guide to Social Cost Benefit Analysis*, July, at p. 8.

[20] Treasury, 2015, *Guide to Social Cost Benefit Analysis*, July, at p. 9.

[21] NZTA/Waka Kotahi, 2024, *Monetised benefits and costs manual*, at p. 17.

2.6 Necessity of Adjusting for Benefit Timing

42. The Analysis deviates from standard practice for projects whose benefits and costs arise over time by not converting future economic impacts into their present value (**PV**) by discounting them at an appropriate discount rate (often referred to as measuring the (risk-adjusted) time value of money).[22]

43. Furthermore, the Analysis provides no assessment of the *net* present value (**NPV**) of the Project's economic impacts, deducting the costs – including capital investments – of the Project from the PV of the Project's benefits:

    43.1. As discussed below, the Analysis even characterises foreign direct investment (**FDI**) associated with the Project – like other Project costs – as a benefit, when for NPV purposes capital investments would normally be characterised as a costs (i.e. negative cash flows – reducing, rather than increasing, assessed project benefits).

44. If a CBA had instead been undertaken, and all relevant benefits and costs been appropriately treated and discounted to the present value, then it would be possible to meaningfully provide a NPV for the Project, and thus to determine whether it creates net benefits (i.e. NPV reliably greater than zero) or net disbenefits/costs (i.e. significant prospect that NPV is less than zero).

45. Finally, certain of the Project's assessed benefits are non-monetary, being expressed in terms of extra jobs generated through the development and then operating phases of the Project:

    45.1. In principle, a present value for benefits such as these could be generated by applying an appropriate social opportunity cost of capital, given employment generated later in time is worth less to society than employment generated now – but this has not been provided.

46. However, generating a purportedly large number of extra jobs – particularly in the development phase of the Project – is particularly difficult to count as a project benefit:

[22] For example, see NZTA/Waka Kotahi, 2024, *Monetised benefits and costs manual*, at pp 23-24 and Chapter 5.

46.1. If doing so was appropriate, that would reward grossly inefficient development projects with excessive employment relative to efficient projects that can achieve the same outputs with fewer employees;

46.2. In turn, that would bias any FTA assessment of significant regional or national benefits towards inefficient projects – resulting in a misallocation of resources, and net decrease in national wellbeing.

2.7 Necessity of Adjusting for Riskiness/Uncertainty of Benefits

47. Except in the unrealistic case that all decision-makers are assumed to be indifferent to risk or uncertainty, it is standard in economic analysis to allow for not just the timing of any benefits or costs, but also their inherent riskiness/uncertainty. Hence, for example, if there is uncertainty regarding the realisation of claimed benefits, irrespective of their timing, those benefits ought to be discounted (in a general sense) when arriving at their equivalent risk-adjusted value:[23]

47.1. Likewise, if there are uncertain but high-consequence adverse possible effects – such as long-term failure of mine tailings with environmental, social and financial implications, those too should be appropriately accounted for, but have not been in the Analysis.

48. Methods like sensitivity testing and scenario analysis/modelling are also important for testing the robustness of any claimed benefits when there are uncertainties in key assumptions:[24]

48.1. No such sensitivity analysis or scenario modelling – and certainly not any analysis or modelling revealing at what value of key assumptions (e.g. gold prices) the net benefits of the Project turn negative – have been presented in the Analysis.

[23] Under standard financial models, the discount rate used to produce PVs or NPVs should incorporate a "risk premium" if a project's benefits co-vary (i.e. move together) with general market investment returns, which serves to reduce those PVs and NPVs in reflection of their "systematic" riskiness.

[24] For example, see NZTA/Waka Kotahi, 2024, *Monetised benefits and costs manual*, at pp 25-26 and Chapter 7.

2.8 Necessity of Considering Fast-Track Applications in Context, Not in Isolation

49. Finally, even if any given application under the FTA can demonstrate clear and significant regional or national benefits, this is not to suggest those benefits should be considered in isolation:

    49.1. If any given application in some sense substitutes for existing economic activities, or competes with other FTA applications (e.g. for labour, housing, or other inputs), then for overall regional or national benefits to be realised it is necessary to ensure that resources are prioritised to projects that maximise those overall benefits.

3. Evidence/Analysis

3.1 Overly Narrow Counterfactual Definition

50. The Analysis states that its counterfactual is the set of benefits it considers absent the Project. However:

    50.1. As above, it does not consider benefits or (opportunity) costs – for either the Project or in the counterfactual – beyond a narrow subset of market-based use values;

    50.2. Nor does the Analysis consider what happens – again, for either the Project or in the counterfactual – beyond the assumed 18 year life of the Project.

51. The reality is that at the end of the Waihi mine's life (with or without the Project), certain costs will be incurred – e.g. for decommissioning, worker relocations (etc) – and then Waihi and its environs will be used for other activities (tourism, agriculture, etc) for which the value of those activities will not be zero:

    51.1. In effect, the Analysis assumes that there is no life for either mine and related workers, or for Waihi and environs more widely, after the mine's closure, which mis-states (net) benefits both with the Project and in the counterfactual without the Project.

52. Another relevant element of the Project's counterfactual – not assessed in the Analysis – is that if it is fast-tracked:

52.1. Any net benefits from the Project will simply be accelerated relative to when they would have been realised absence any fast-tracking – i.e. had the Application gone through normal approvals processes instead of under the FTA;

52.2. Seen in this light, the benefit of fast-tracking the Project is not the realisation of those net benefits in their entirety, but rather just the value of accelerating the realisation of those net benefits (i.e. a time value of money benefit only, or predominantly).

53. The time value of accelerating the Project's benefits – as well as their total PV – is examined further below.

3.2 Understated or Omitted Costs/Adverse Effects

54. In my opinion, a number of material costs/adverse effects are either unaccounted for, or understated, in the Analysis:

54.1. Recognition of such costs for FTA purposes is formally provided for via the legislation's adverse effects provisions;

54.2. For the purposes of sound economic decision-making, those should be an inherent component of any assessment of regional or national (net) benefits.

3.2.1 Omitted Environmental Costs

55. The Project involves a waste treatment plant (WTP) and other holding ponds in respect of which the Substantive Application Report states that "holding ponds are designed to withstand flood events such that stored water intended for the WTP will not enter any surface waterbodies except during extreme rainfall events when overflow of the ponds could occur" [emphasis added]:[25]

55.1. Overflows from the WTP and other holding ponds will give rise to environmental and other adverse effects.

[25] Substantive Application Report, at p. 385.

56. Even if the Analysis properly included provision for the resources required to avoid, remedy or mitigate such possible adverse effects:

56.1. It inappropriately counts those resources as Project benefits, when in fact they are costs incurred to avoid other costs; and

56.2. Implicit in any such provision are (unstated and untested) assumptions about the likelihood of extreme rainfall events – given material climate change uncertainties, and the implications of climate change for the frequency and severity of adverse weather events, the extent of any such adverse effects could be more severe and frequent than assumed, which the Analysis should reflect through suitable techniques such as scenario or risk modelling.

57. The Project also involves construction of a rock stack, pit lake, and facilities to contain mine tailings to avoid spillage of environmentally damaging byproducts of mining and/or (catastrophic) breach of those tailings facilities:[26]

57.1. As for overflows from the WTP or other holding ponds, any costs incurred to avoid, remedy or mitigate possible adverse effects in respect of failures such as spillage or (catastrophic) breach[27] have at most been inappropriately counted in the Analysis as Project benefits:

57.2. Furthermore, since risks like tailings spillage – and in particular (catastrophic) breach – are likely to be very long-lived (e.g. inter-generational), the Project creates a very long-lived risk of eventual and potentially very costly future adverse effects, which the Analysis has not properly accounted for.

58. Regarding the latter, the Project involves aftercare provisions,[28] as well as bond and trust fund conditions:[29]

58.1. However, those provisions involve time-limited contributions by the Applicant, with no apparent recourse to the Applicant beyond normal limited legal channels

[26] E.g. see Bond and Trust Fund Conditions, at C85.

[27] The Bond and Trust Fund Conditions at C89(a) refer to failures of the relevant facilities such as "structural instability or failure, land and/or water contamination, and failure of rehabilitation."

[28] Substantive Application Report, at s. 6.20.

[29] Bond and Trust Fund Conditions.

for suing overseas corporates with ownership structures in which shareholders enjoy limited liability;

58.2. Hence, if climate change, seismic, or other uncertainties mean that these adverse effects occur with higher probability or severity than those assumed in those aftercare reprovisions, long-lived and potentially catastrophic risks associated with the Project's tailings or other risk facilities will most likely be socialised to New Zealander ratepayers and taxpayers – a cost not reflected in the Analysis.

59. It should be noted that the probability of a catastrophic event may be small:

59.1. However, over a long enough time horizon the risk of catastrophic failure could rise materially, even to the level of being a certainty;

59.2. Furthermore, even if the risk of such an event is small, the costs of such an event can be pronounced, meaning the expected cost to future generations of New Zealanders is still material and not to be ignored.[30]

60. Relatedly, the Project involves mining activities in areas known to contain at-risk native fauna, such as certain species of skinks and frogs:[31]

60.1. Measures to avoid, remedy or mitigate adverse effects on such fauna are provided for in the Project, though with ongoing monitoring provided for due to acknowledged uncertainties regarding the vulnerability of those fauna to mining activities;

60.2. As above, the Analysis mischaracterises any expenditures to avoid, remedy or mitigate these adverse effects as benefits, and does not attempt to measure the costs of unintentionally harming those fauna as a consequence of the Project.

[30] In long-term climate change modelling it is further commonly accepted that standard discounting approaches to calculate the present value of major future catastrophes is inappropriate, by effectively ignoring the welfare of future generations. Alternative approaches such as hyperbolic discounting/declining discount rates are instead considered appropriate, since they better weigh the interests of future generations when current generations are making decisions that could leave them facing catastrophic risks.

[31] E.g. Substantive Application Report, at p. 383.

61. Published research on the willingness to pay (**WTP**) of New Zealanders to enhance biodiversity in planted forests assessed the value of enhancing Brown Kiwi populations at around $28/person/year in 2010 dollars,[32] which equates to $41/person/year in current dollars[33] (the WTP for enhancing Bush Falcon populations was in fact even higher in that research, so the WTP to enhance kiwi populations is not necessarily an upper bound on for other species and remains pertinent here):

61.1. While this figure may seem modest, when applied to the current adult population of 4,353,500,[34] which is a typical reference population for assessing non-market values such as these,[35] this amounts to $180 million per year;

61.2. By way of comparison, the Project provides for funding of $2.4 million initially, and $0.6 million per annum for 10 years or until mine closure (whichever is the later) for the Waihi North Biodiversity Project:[36]

61.2.1. This is clearly orders of magnitude lower than the social value of enhancing native biodiversity, such as for the relevant skinks and frogs that are potentially affected by the Project.

3.2.2 Loss of Amenity regarding Coromandel Forest Park

62. The Project involves activities in the Coromandel Forest Park that will likely reduce the amenity value of that area:

62.1. This includes direct adverse impacts such as noise (e.g. helicopters, blasting) and vibration (e.g. from blasting or other heavy equipment works) experienced by those using the park;

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[32] Yao et al., 2014, "Valuing biodiversity enhancement in New Zealand's planted forests: Socioeconomic and spatial determinants of willingness-to-pay", *Ecological Economics*, 98, pp 90-101, at Table 4.

[33] Using the RBNZ CPI calculator for June quarter indexes: https://www.rbnz.govt.nz/monetary-policy/about-monetary-policy/inflation-calculator.

[34] As at June 2025, from: https://infoshare.stats.govt.nz/SelectVariables.aspx?pxID=d2975a06-2290-428f-bce7-467090f1d5f3.

[35] E.g. see Patterson and Cole, 2013, *'Total Economic Value' of New Zealand's Land-Based Ecosystems and their Services*, at Table 14.

[36] Substantive Application Report, at p. 384.

62.2. It also includes loss of existence, option or bequest values (see Figure 2.1 and the TEV discussion above) – in this case of the existing forest park's amenity values – which losses could be experienced by a much larger population who might never or only infrequently visit the park, but who care about the park's existing amenity values being available for their own future use (option value), or for the use of future generations (bequest value).

3.2.3 Costs regarding the Loss of HPL for Land-Based Primary Production (LBPP)

63. The Substantive Application Report acknowledges that parts of the Project's subject sites include Highly Productive Land (**HPL**) as defined in the National Policy Statement for Highly Productive Land (**NPS-HPL**):[37]

63.1. As such, ordinarily any change of land use out of land-based primary production (**LBPP**) on such land into other uses requires an exemption under the NPS-HPL (relevantly, clause 3.10 of that NPS);

63.2. While some of the relevant HPL will not be changed out of economically viable LBPP (the historical use of the land, or its predominant use on similar nearby lands)[38] as a consequence of the Project, it appears that some of it might.

64. Costs regarding the loss of HPL for economically viable LBPP due to the Project are ignored in the Analysis:

64.1. This represents a category of omitted adverse effects.

65. Furthermore, since there is clear evidence of current or historical economically viable LBPP occurring on either the HPL parts of the Project's subject sites or on similar land nearby, this means the exemption provided under clause 3.10 of the NPS-HPL allowing conversion of HPL to non-LBPP uses would not be available to the Applicant:

65.1. I.e. due to the automatic failure of the test set out in clause 3.10(1)(a), and hence the automatic failure of the additional test set out in clause 3.10(2), which two

[37] Substantive Application Report, at s. 3.3.2.

[38] E.g. see Substantive Application Report, at pp 312-313. Satellite maps confirm that productive land in the relevant area is typically used for agriculture, horticulture, or forestry.

tests (as well as others) must be simultaneously satisfied for an exemption to be available under that clause.

3.2.4 Socio-Economic Costs

66. The Analysis ignores three classes of socio-economic costs which the Substantive Application Report acknowledges are adverse effects of the Project even after measures to avoid, remedy or mitigate them have been applied:[39]

    66.1. As mentioned above, increased pressure on housing – especially during the Project's development phase;

    66.2. Loss of sense of place for the Willows Road area; and

    66.3. Reduced environmental quality due to increased traffic movements in the Willows Road area.

67. These too represent adverse effects of the Project which the Analysis should be counting as costs (which it hasn't) – rather than counting the cost of any measures to avoid, remedy or mitigate those costs as benefits.

3.3 Overstated Benefits

3.3.1 Upward Bias due to Use of Input-Out Multipliers

68. As discussed in Section 2.3, due to their inherent limitations, the use of I-O multipliers means the Analysis has overstated the Project's purported benefits, even supposing it has properly measured them, and further assuming that EIA is appropriate (rather than CBA).

3.3.2 Upward Bias due to Counting Costs as Benefits

69. Also as discussed above, the Analysis treats expenditures that are inherently costs of the Project as project benefits – e.g. costs of avoiding, remedying or mitigating its adverse effects (such as expenditures on mine aftercare, or safely containing mine tailings):

[39] Substantive Application Report, at pp 526-527 and 531.

69.1. This too overstates Project benefits.

3.3.3 Mischaracterisation of Foreign Direct Investment as Outright Benefit

70. The Analysis highlights the more than $1 billion of FDI involved with the Project, implying that this amount is a benefit.[40]

71. FDI might be a benefit if it results in the creation of assets producing positive economic externalities beyond the Project itself, or otherwise leads to such externalities (e.g. through technology transfer):

    71.1. However, the Analysis does not point to any such positive externalities.

72. More fundamentally, if foreign investors invest more than $1 billion in the Project, they will only do so because they expect their returns (in PV terms) from doing so – which accrue to those overseas parties – to at least equal, and ideally exceed that more than $1 billion figure (i.e. they will only do so if they expect the Project to have a positive NPV in financial investment terms – see the discussion in Section 2.6):

    72.1. Hence, the Project's FDI is not a benefit per se – i.e. it is not a "gift" from overseas investors to either the Waikato region or New Zealand – but rather just one side of a bargain for which the relevant overseas investors expect to be adequately rewarded (via returns that accrue to them, not the Waikato region or New Zealand).

3.3.4 Mischaracterisation of Assumed Gold Price as Conservative

73. The Analysis says that it is based on an assumed gold price of US$2,000/Oz, which it characterises as conservative:[41]

    73.1. However, gold prices – like other commodity prices – have been found in published research to be "mean-reverting", meaning they can experience cycles

[40] Eaqub Report, at p. 2.

[41] Eaqub Report, at pp 10-11.

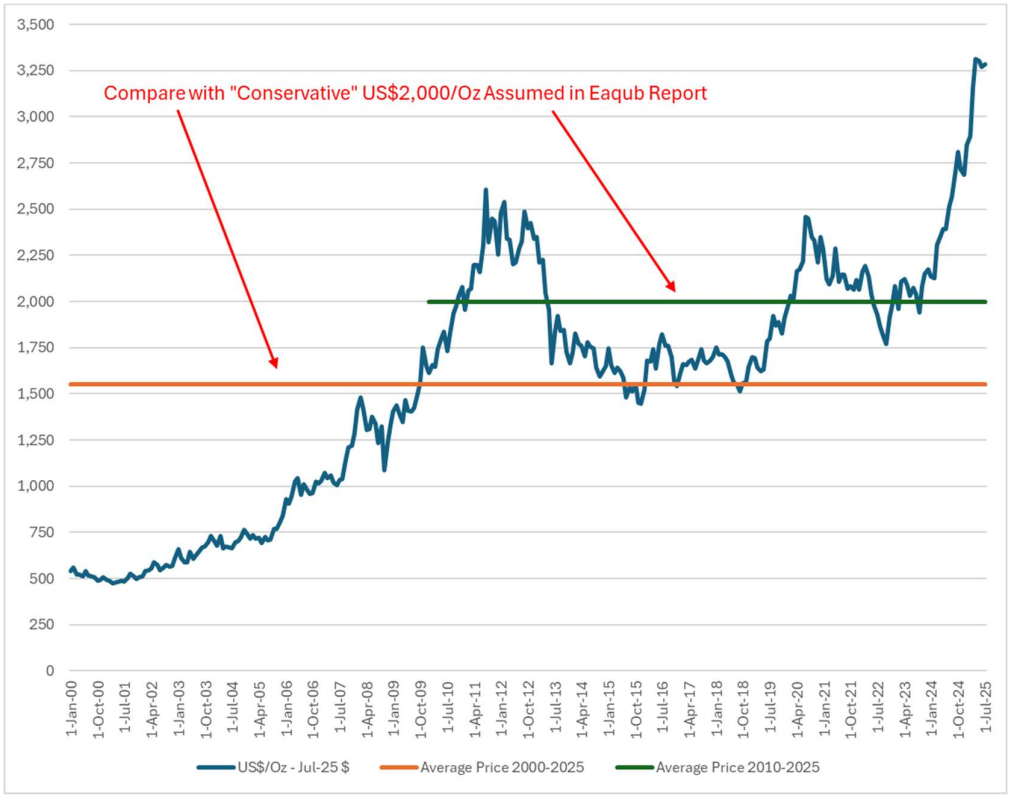
where they are either higher or lower than their historical average at any given time, but over time they tend towards their historical average;[42]

73.2. Furthermore, even commodities like precious metals such as gold exhibit little real price growth over time.[43]

74. Hence, to assess whether the gold price assumed in the Analysis is conservative or not, it is relevant to inquire into historical average gold price levels, since they are the prices which gold prices should expect to tend to over time:

74.1. Figure 3.1 shows historical gold prices in US$/Oz in July 2025 US$, for the same sample 2000 start date as used in the Analysis.

Figure 3.1 – Historical Gold Prices in July 2025 US$/Oz



Source: data from https://www.macrotrends.net/datasets/1333/historical-gold-prices-100-year-chart, and author's calculations.

[42] E.g. see Cunado et al., 2019, "Persistence in trends and cycles of gold and silver prices: Evidence from historical data", *Physica A*, 514, pp 345-354.

[43] E.g. see Deaton, 1999, "Commodity Prices and Growth in Africa", *Journal of Economic Perspectives*, 13(3), Summer, pp 23-40.

75. As can be seen from the figure, the historical average gold price using the same 2000 starting date as used in the Analysis is just over US$1,500/Oz in July 2025 dollars, meaning the assumed US$2,000/Oz figure is c. 33% *higher* than historical average:

    75.1. Against this benchmark, the gold price assumed in the Analysis is far from conservative, and hence serves to materially *overstate* the Project's assessed benefits.

76. If, instead, it was supposed that the US$2,000/Oz historical average gold price over more recent years was relevant – i.e. the average for 2010-2025 – then at most all that could be said about the gold price assumed in the Analysis is that it is consistent with more recent (rather than longer-term) historical average gold prices:

    76.1. However, even then, it could not be claimed to be conservative.

3.3.5 Failure to Account for Timing and Riskiness of Purported Benefits

77. As discussed in Section 2.6, it is imperative that the timing of any costs and benefits be appropriately accounted for, which typically involves converting them to their PV using some suitable discount rate reflecting the (systematic) riskiness of the Project's cash flows:

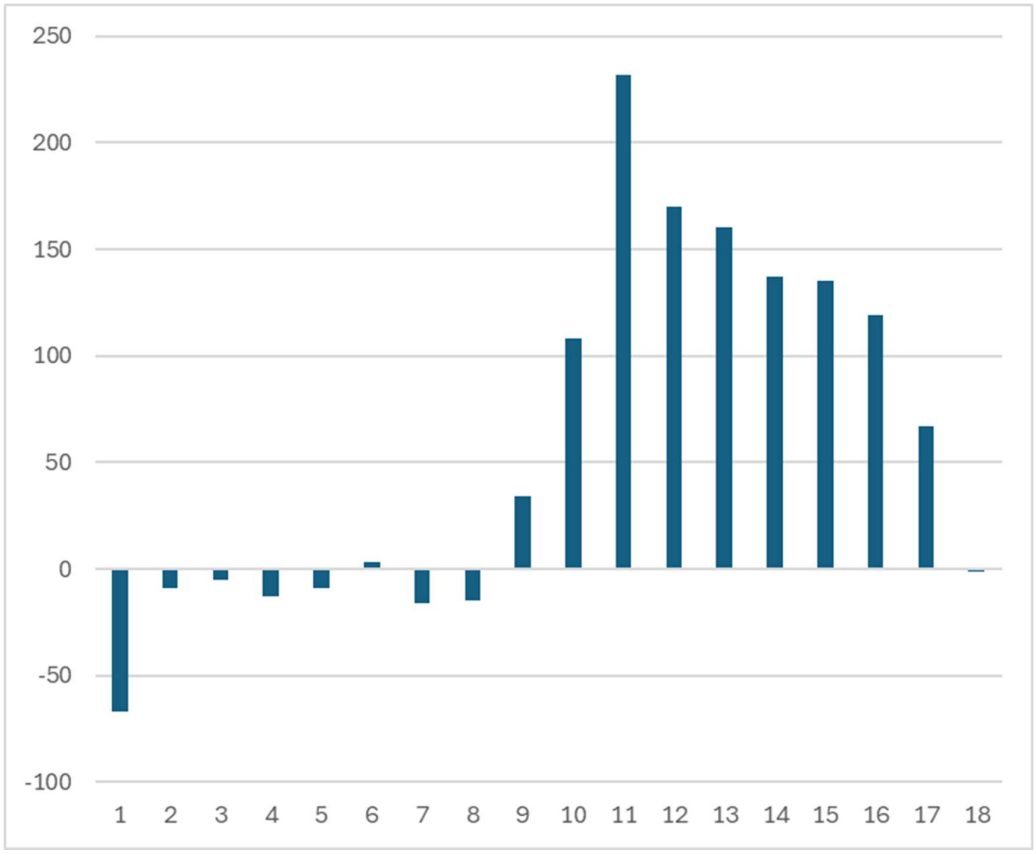
    77.1. This is critical if Project benefits occur far into the future, but costs arise earlier.

78. The Analysis does not provide PV figures, and instead just provides total and average annual figures in non-PV terms.

79. Figure 3.2 shows the timing of one class of claimed Project benefits – royalties, taxes and PAYE – using data from Appendix A of the Eaqub Report.

80. As can be seen from the figure, the Project initially enjoys negligible or predominantly *negative* royalites and taxes – i.e. the Applicant is initially effectively paid by New Zealanders to undertake the Project, rather than contributing payments to New Zealand.

Figure 3.2 – Years 1-18 Royalty, Tax and PAYE Payments due to the Project (2024$m)



Source: data from Appendix A of the Eaqub Report, and author's calculations – see Appendix 1.

81. In Appendix 1, I convert these figures into PV terms using illustrative discount rate assumptions, with the assumed real discount rate reflecting the riskiness of gold mining related cash flows:

    81.1. While the total value of these amounts is $1,030 million, in PV terms they total just $364 million, which is 65% less than that total;

    81.2. The average annual value of these amounts is $57 million, while the constant annual amount (i.e. "annuity") that produces the same PV of these figures – a more relevant annualised amount reflecting the time-profile and systematic riskiness of the Project's benefits – is just $37 million.

82. Two caveats regarding even these PV figures:

82.1. First, they assume that these royalties and taxes are actually paid, when transfer pricing and other accounting devices could mean these amounts never materialise as actual payments; and

82.2. Second, they assume that the relevant counterfactual is the existing mining operations closing sooner than they could with the Project, rather than the Project's benefits simply being realised sooner than they would otherwise due to being fast-tacked:

82.2.1. If only the time-value of accelerating these projects is considered, the PV of these amounts is just $70 million (three years' acceleration), $108 million (five years' acceleration), or $142 million (seven years' acceleration).

83. Hence, the true value of these purported Project benefits – assuming they materialise – is considerably less than that claimed in the Analysis.

3.3.6 Failure to Account for Leakage of Purported Benefits to Overseas Parties

84. As noted above, a major source of Project benefits leakage is via the Project's expected investment returns to the foreign investors providing over $1 billion in FDI.

85. Additionally, some of the claimed employment benefits of the Project are likely to accrue to overseas (e.g. fly-in-fly-out) workers, especially during the Project's development phase for which only temporary but skilled labour is required:

85.1. Additionally, some of the Project FDI and operating expenditures will be spent on equipment and other inputs from overseas suppliers, representing further leakage of Project benefits from Waikato and New Zealand.

86. The Analysis does not fully account for how the purported Project benefits accrue to overseas parties, and hence are not regional or national benefits.

3.3.7 Suggested Double-Counting of Benefits

87. The analysis lists FDI, exports, employment and economic activity benefits as if these are mutually exclusive and additive:[44]

    87.1. For the reasons above, the purported FDI benefits are more apparent than real in any case;

    87.2. However, more substantively, since any purported employment benefits are effectively financed by investors (via FDI or retained earnings) or operating revenues (predominantly exports), it would not be appropriate to separately count each of these categories of benefits.

88. The Analysis does not provide a breakdown of net Project benefits, exclusive of any such double-counting.

3.4 Significance of Purported Benefits

89. The Analysis often highlights the significance of purported Project benefits by reference to their share of Hauraki District comparators:[45]

    89.1. However, the FTA requires significant regional or national benefits – not significant district-level benefits – so I understand these comparators to not be germane for FTA purposes.

90. Moreover, as discussed above, many of the relevant benefits have been overstated, not least due to the Analysis not converting them to PV terms.

91. However, even taking purported total or annual average benefits as given, they appear to be particularly modest even at the Waikato Region level, and essentially immaterial at the national level:

[44] E.g. Eaqub Report, at pp 2-3.

[45] E.g. Eaqub Report, at p. 13.

91.1. Local spending is stated to represent just 0.2% of Waikato's regional economy,[46] with the purported $106 million average annual Project expenditures (operating and capital)[47] representing only 0.03% of national level GDP;[48]

91.2. Export revenues are stated to average $286 million per annum,[49] which represents just 0.4% of merchandise exports, and 0.27% of total exports;[50]

91.3. Annual average royalties, taxes and PAYE are stated to add to $57 million,[51] representing just 0.05% of total government tax revenues;[52]

91.4. Average annual employment supported by the Project – both direct and indirect – is claimed to be 859 employees,[53] representing just 0.3% of Waikato region employment,[54] and only 0.03% of national employment.[55]

92. In my opinion, based on these figures the purported Project benefits – even assuming they have not been overstated – represent particularly modest contributions to even the Waikato regional economy (i.e. well less than 0.5%), and are essentially immaterial at the national level (even for exports, the contribution of which is c. 10 times that of other Project benefits at the national level).

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[46] E.g. Eaqub Report, at p. 13.

[47] Eaqub Report, at p. 13.

[48] Using GDP for year to March 2024 of $413 billion, from: https://www.rbnz.govt.nz/-/media/project/sites/rbnz/files/statistics/series/m/m5/hm5.xlsx.

[49] E.g. Eaqub Report, at p. 11.

[50] Using merchandise exports for the year to March 2025 of $74 billion, and exports including services of $105 billion, from: https://www.mfat.govt.nz/en/trade/mfat-market-reports/trade-and-economic-update-q1-2025-new-zealand-exports-show-growth-and-resilience-despite-global-trade-uncertainty.

[51] Eaqub Report, at Appendix A.

[52] Using tax revenues for the year to June 2024 of $119.9 billion, from: https://www.treasury.govt.nz/publications/year-end/financial-statements-2024.

[53] Eaqub Report, at p. 15. The Eaqub Report at p. 2 appears to mis-state the Project's average annual total incremental employment as being 895 rather than 859 (see the Substantive Application Report, at p. 381).

[54] Using total persons employed in labour force, both sexes, Waikato region, December 2024, of 272,000, from: https://infoshare.stats.govt.nz/SelectVariables.aspx?pxID=91a99f1c-f3ab-47ab-bd34-796c4c87635e.

[55] Using total persons employed in labour force, both sexes, total all regional councils, December 2024, of 2,897,000, from: https://infoshare.stats.govt.nz/SelectVariables.aspx?pxID=91a99f1c-f3ab-47ab-bd34-796c4c87635e.

93. While the FTA does not define what it means by "significant", based on the above metrics it is my opinion that the Analysis' claim[56] that the Project benefits are significant at the regional or national level cannot credibly be sustained.

4. Conclusions

94. In conclusion, it is my opinion that:

94.1. The Analysis has used a methodology that inherently overstates the Project's benefits;

94.2. Any assessment of the Project's benefits requires a full CBA, including suitable sensitivity analysis and scenario modelling to test the importance to claimed benefits of key uncertainties, which have not been provided;

94.3. The Analysis fails to properly define the Project's counterfactual, does not properly assess all relevant costs/adverse effects, and overstates certain of the purported benefits;

94.4. Even if the purported benefits of the Project materialise, they are not germane at the Hauraki District level for FTA purposes, particularly modest at even the regional (Waikato) level, and essentially immaterial at the national level; and

94.5. Hence, the Application's purported benefits have not been credibly and robustly established, and certainly not to the level of demonstrating significant regional or national benefits as required under the FTA.

Richard Meade (PhD, Toulouse School of Economics)
Principal Economist

[56] E.g. Eaqub Report, at pp 3 and 17.

APPENDIX 1: Waihi North Project - Converting Economic Analysis Figures in Appendix A of Eaqub Report to Present Values and % of Tax Revenues

Richard Meade, Cognitus Economic Insight, richard.meade@cognitus.co.nz

Version : 25 August 2025, 12h05

Assumptions

Note: annual figures taken from Appendix A of Eaqub Report.

Asumed nominal WACC p.a.	10%	
Assumed inflation p.a.	2.5%	
Implied real WACC p.a.	7.3%	
Government taxation revenue for year ended 30 June 2024*	2024$m	119,900

Year:						*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*
	Unit	*Total*	*p.a.***	*PV Annuity***	*% Change****																		
Royalties	2024$m	134	7	4	-47%	-30	0	0	1	0	1	0	1	4	15	30	24	23	19	19	17	9	1
Corporate tax	2024$m	725	40	25	-37%	-37	-9	-7	-18	-13	-3	-22	-25	18	77	185	129	120	102	102	88	46	-8
PAYE or direct employees	2024$m	171	10	8	-18%	0	0	2	4	4	5	6	9	12	16	17	17	17	16	14	14	12	6
		1,030	57	37	-35%	-67	-9	-5	-13	-9	3	-16	-15	34	108	232	170	160	137	135	119	67	-1
Total WNP Royalties (etc) as % of total government tax			0.05%	0.03%																			

Present Values

Real discount factor for immediate WNP start:																		
		0.9318	0.8683	0.8091	0.7539	0.7025	0.6546	0.6100	0.5684	0.5296	0.4935	0.4599	0.4285	0.3993	0.3721	0.3467	0.3231	0.3010	0.2805

		Immediate Start	*PV if Start Delayed by Years*			*PV Gain from Starting Earlier*			*PV Gain p.a.*		
			3	*5*	*7*	*3*	*5*	*7*	*3*	*5*	*7*
Royalties	2024$m	39	32	27	24	7	12	15	0.4	0.6	0.8
Corporate tax	2024$m	249	201	175	152	48	74	97	2.6	4.1	5.4
PAYE or direct employees	2024$m	76	62	54	47	15	23	30	0.8	1.3	1.7
		364	295	256	222	70	108	142	3.9	6.0	7.9
PV of WNP Royalties (etc) as % of total government tax		0.30%				0.06%	0.09%	0.12%	0.00%	0.01%	0.01%

* Source: https://www.treasury.govt.nz/publications/year-end/financial-statements-2024.

** Over 18 years.

*** Annuity vs p.a. average.

Royalties (etc) in 2024$m by Project Year