

BEFORE THE FRESHWATER HEARINGS PANEL

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of submissions on the Proposed Otago Regional
Policy Statement 2021: Freshwater Planning
Instrument

EVIDENCE OF SHAMUBEEL EAQUB

FOR OCEANA GOLD NEW ZEALAND LIMITED

Dated 28 June 2023

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1 Qualifications and Experience

- 1.1 My full name is Shamubeel Eaquab. I reside in Auckland, and I am an economist.
- 1.2 I hold a BCom with Honours in Economics from Lincoln University and I am a Chartered Financial Analyst (CFA).
- 1.3 I have worked as a macro-economist at the ANZ Bank in Wellington and Melbourne, as a macro-economist and financial analyst at Goldman Sachs JBWere in Auckland, as an economic consultant at the New Zealand Institute of Economic Research, in my own practice, and now at Sense Partners.
- 1.4 Sense Partners is a boutique consultancy. We are experienced economists with backgrounds in modelling, public policy, regulatory affairs and economic assessments. My areas of work tend to focus on housing, construction, economic development, economic measurement and evaluation, and cost benefit analysis. My role as an economic consultant has included giving expert economic evidence in court cases and arbitrations.
- 1.5 Relevant to this application, I have advised OceanaGold New Zealand Limited (OGNZL) on various economic matters since 2015. I have worked as a macro economist since 2001 and have deep experience in regional economic development. I have conducted consultancy projects for industry, central government, and local government on regional economic issues. I gave evidence to the Hearings Panel on the Proposed Otago Regional Policy Statement (non-freshwater parts). Unless specifically stated my evidence from that hearing has not changed. As required by the Hearings Panels Fourth Minute, I have highlighted the new aspects of my evidence.
- 1.6 Even though this matter is not before the Environment Court, I have read the Environment Court's Code of Conduct for Expert Witnesses and agree to be bound by it. The matters I address in this brief of evidence are within my expertise , except where I state that I am relying upon material produced by another person. I have not omitted to consider material facts known to me that might alter or detract from my opinions.

2 What I have been asked to do

- 2.1 OGNZL has asked me to assess the economic contribution of Macraes gold mine (Macraes hereafter) in 2021 (the latest financial year) and thus the likely impact of mine closure.
- 2.2 For the purposes of this evidence, OGNZL also asked me to consider the role of consented water in the primary sector in the Otago Region.

- 2.3 We have relied on the 2021 Annual Report and more detailed internal management accounts to build a careful economic picture of Macraes.

3 What we found

- 3.1 Gold mining is geologically constrained, in that it can only be done where the resources are. Water is a critical input in gold processing, which includes both access to fresh water and discharge of water containing contaminants to water. Other expert evidence submitted by OGNZL details how the water is used and pressures on this natural resource are managed. Like other primary sectors, the economic potential of the resource cannot be realised without access to water. Water is a necessary input.
- 3.2 Statistics New Zealand data summarised consented water use by Regional Council for 2017-18 consistently across the country.¹ This allows us to compare the relative allocation of consented water takes (maximum allowance) relative to economic contribution. We use the maximum allowable as the measure of committed resource, which has the opportunity cost of not being able to commit this resource to another use.
- 3.3 We found that the Otago Regional Council area is more water intensive (from a maximum take perspective, which is equivalent to committed resource) than New Zealand as a whole:
- (a) Otago uses 16% of national irrigation consented maximum take, however Otago only produces 6% of national agriculture output.
 - (b) Otago uses 47% of national industrial, other and multiple use takes, however it only produces 3% of the national industrial output (mining, forestry and manufacturing – the most intensive water using sectors).
 - (c) Otago uses 34% of the national drinking water takes, however Otago only has 5% of the national population.
- 3.4 This high level of water allocation relative to economic output and population means that there is good reason for the Regional Council to be careful with the application of its water resource, requiring careful prioritisation of marginal uses which derive maximum benefit. My analysis shows Macraes is a high marginal benefit application.
- 3.5 In the following parts of my evidence, I have established the economic contribution of the Macraes mine to the local economy, and I have used the maximum consented take from three consents used by

¹ <https://www.stats.govt.nz/indicators/consented-freshwater-takes/>

Macraes². A comparable use of consented water could be irrigation and agricultural output. I estimate economic contribution per cubic metre of consented water take (dollar of gross value added per cubic metre of maximum consented take per year):

(a) For agriculture: \$0.7/m³

(b) For Macraes: \$42.0/m³.

3.6 The marginal allocation of water to Macraes enables much greater (64 times) contribution to the regional economy than agriculture. Put another way, mining within the primary sector, tends to produce greater economic impact, that is more *efficient*, for a given level of environmental resource compared to agriculture. Indeed, agriculture is a resource intensive sector, whether considered in terms of water, land and emissions.

3.7 To illustrate this further, we estimate the consented maximum allowable water take used by Macraes is around 0.5% of irrigation consents. Macraes is extremely efficient at creating outsized impact in jobs versus 0.5% of allocated water takes:

(a) At the Otago regional level, Macraes jobs are equivalent to 9% of agriculture sector jobs.

(b) At the Waitaki District level, Macraes jobs are equivalent to 52% of agriculture sector jobs.

3.8 While we have presented the economic measure in terms of GDP and jobs for comparability in resource use, economic contribution needs to be considered slightly differently at national versus local levels.

3.9 At the national level, exports, royalties, and GDP contributions are useful indicators (see Figure 1).

(a) Macraes exported \$343 million of gold in 2021, compared to an estimated \$4.3 billion of exports from Otago Region and \$63 billion of exports nationally. These exports would not be readily replaced by other resources, as the gold would otherwise not be mined.

² 2003.376.V1 – a shared permit to take 85 litres per second 7,344 cubic metres per day; 157,000 cubic metres per month, 1,256,000 cubic metres per year from Taieri River

96374.V2 – a shared permit to take 68 litres per second, 250m³ per hour, 117,000m³ per month (= 1,404,000m³ per annum) from the Taieri River and Annetts Creek, at a rate not exceeding 20 litres per second.

96784_V3 – a permit (for mining operations, post mining rehabilitation and supply to trout hatchery) to take up to 200 litres per second of water from the Taieri River, with allowable extraction related to river flow.

- (b) Macraes gold exports of \$343 million are large. In 2021, wool exports for New Zealand were \$423 million and vegetable exports were \$484 million. If Macraes shut, these exports would simply cease (as the gold will be left in the ground, but the workers and capital may be redeployed elsewhere in the economy).
- (c) The revenue would rank Macraes at 118 in Deloitte's Top 200 Index,³ larger than well-known companies such as TVNZ and Ports of Tauranga. Macraes is a large economic entity in the New Zealand business landscape.
- (d) Macraes paid royalties of \$4.1 million in 2021. This is income that would otherwise not accrue to the public purse.
- (e) Macraes' GDP contribution in 2021 was \$237 million, compared to national GDP of \$327 billion. (For context, latest available regional GDP estimates are: Waitaki \$1.5 billion, Dunedin \$7.2 billion, and Otago Region \$14 billion.)

(f) Figure 1: National benefits

2021, \$m	Exports	GDP	Other
Macraes	343	237	
Waitaki District	...	1,450 ⁽²⁾	
Dunedin City	...	7,194 ⁽²⁾	
Otago Region	4,300 ⁽¹⁾	14,003	
NZ	63,291	326,507	
Memo items:			
Royalties			4.1
Local donations and support			0.2

Notes:

(1) MFAT. <https://www.mfat.govt.nz/assets/Trade-General/Trade-Market-reports/STORM-Analysis-Regional-Summaries-Otago-28-September-2020-PDF.pdf>

(2) 2020, latest estimates from MBIE. <https://www.mbie.govt.nz/business-and-employment/economic-development/regional-economic-development/modelled-territorial-authority-gross-domestic-product/>

Source: Company data, MBIE, Statistics New Zealand, Sense Partners

- 3.10 There were 603 people directly employed by Macraes in 2021. For context, the typical large firm in New Zealand (those employing over 200 people), employ 400-1000 people depending on sector. Macraes is a large New Zealand business entity. Importance to the local

³ <https://top200.co.nz/wp-content/uploads/2022/03/nz-en-Top-200-2021-Top-200-Index.pdf>

economy depends on if they are concentrated in one place, with purchases from local suppliers, and injecting capital expenditure that would otherwise not happen.

- 3.11 At a local level, a more nuanced perspective is required. While the business unit is in the Waitaki District, it is supported by head office functions in Dunedin, supported by suppliers across New Zealand, and staff that live across the region. So, the local or regional economic effects requires a careful analysis of where directly employed staff live, where the suppliers are located and likely additional spend by those additional workers.
- 3.12 The results of our analysis are summarised in Figure 2 (spend) and Figure 3 (employment effects, both direct and indirect).

Figure 2: Estimated local spend effects

2021, NZ\$m	Purchases	Wages	Total
Waitaki	18.7	17.3	36.0
Dunedin	40.6	41.6	82.2
Rest of Otago Region	1.9	2.5	4.4
<i>All of Otago</i>	<i>61.3</i>	<i>61.4</i>	<i>122.7</i>
Rest of NZ	169.9	4.6	174.5
All of NZ	231.2	66.0	297.2

Figure 3: Estimated local employment effects

2021, FTEs	Direct	Indirect in suppliers	Indirect in other effects ⁽¹⁾	Total effects	Total economy
Waitaki District	158	76	99	333	12,268
Dunedin City	380	151	226	757	68,566
Rest of Otago	23	7	12	43	55,266
<i>All of Otago</i>	<i>561</i>	<i>234</i>	<i>338</i>	<i>1,132</i>	<i>136,100</i>
RoNZ	42	580	480	1,103	2,654,000
Total	603	814	818	2,235	2,790,100

Note: (1) Consumption effect of direct and supplier employees.

Source: Company data, Statistics New Zealand, Sense Partners estimates

- 3.13 Figure 2 summarises all spend (on operating and capital expenditure) in 2021. We analysed the supplier data at a local district level to understand the geographic distribution of the spend.
- 3.14 Figure 3 summarises the employment effects of Macraes. The three columns show:

- (a) Direct: Those who are employed by the mine. The location is where the staff live, as that tends to be where the incomes tend to be primarily spent.
- (b) Indirect in supplier: We know where suppliers to Macraes are located. We have assumed, as we do not have access to residence location for suppliers' staff, that those employment effects are local.
- (c) Indirect in induced and other effects: largely reflects jobs supported by the consumption effects of high value employment in the mine. Average income at Macraes is \$110,000, roughly twice the average of \$56,000 in Waitaki, \$61,000 in Dunedin, and \$59,000 in the Otago Region. Even if all those at Macraes were able to find other jobs, which is likely given widespread labour shortages, the income differential alone is equivalent to over 577 Waitaki District jobs. Our induced effect assumptions are realistic.

3.15 We estimate the impact of Macraes closure on jobs using the extraction method based on economic literature⁴, where we analyse the Statistics New Zealand's Input-Output tables and estimate how many jobs would be affected if an industry were to shut. We estimate that if the metal mining industry were to close, for each mining job, 3.7 jobs in other parts of the economy would be lost. We sense-checked this against bottom-up analysis of jobs in the supply chain and in consumption effects for Macraes, and believe these estimates are realistic.

3.16 However, multiplier analysis needs to be interpreted with care. The analysis shows where the current dependencies are through suppliers and jobs, but it does not look at if the local economy is flexible and whether these resources may be redeployed elsewhere over time. In small regional economies, it is often difficult to quickly redeploy workers and resources to other uses, because there are few other large businesses who have need for such specialised resources.

3.17 *Implications for Waitaki District*

- (a) Macraes has been a large and relatively steady employer in the Waitaki District. The mine employs 603 people, and 158 also live there.
- (b) We estimate the mine injects \$36.0 million into the Waitaki District, through incomes of Macraes staff who live there, and from suppliers located in the district. For context, the district's GDP is \$1.5 billion.

⁴ Erik Dietzenbacher & Michael L. Lahr (2013) "Expanding Extractions", *Economic Systems Research*, 25:3, 341-360, DOI: 10.1080/09535314.2013.774266

- (c) We estimate this injection of spending supports 333 jobs in the district, compared to an estimated 12,268 jobs across all sectors. This gives a sense of job losses that will most affect the local district.
- (d) As a memo item, Macraes also supported local activities through donations and support in kind of over \$220,000 in 2021.

3.18 *Implications for Dunedin City*

- (a) Dunedin City is a significant beneficiary of Macraes. This is because over half of Macraes staff live in Dunedin (380), related \$41.6 million in income, and \$40.6 million is injected via purchases from suppliers (a total of \$82.2m million). For context, Dunedin's GDP is \$7.2 billion.
- (b) We estimate Macraes supports 757 jobs in Dunedin, compared to an estimated 68,566 jobs across the district.
- (c) The residence of Macraes staff and support via suppliers makes Macraes a large business entity for Dunedin.

3.19 *Implications for Otago Region*

- (a) Much of the benefits to the Otago Region accrue to Waitaki District and Dunedin City.
- (b) Across the Otago Region, Macraes supports the regional economy through \$122.7 million of payments to suppliers and workers who live in the region.
- (c) This directly and indirectly supports 1,132 workers in the region. As noted earlier, this makes Macraes a large business entity by national terms, which is locally located, and the direct jobs that Macraes are very well paid (around double the local average).
- (d) Presence of mining attracts highly skilled and well-paid staff into the region, with both economic and non-economic spill-overs from this. The mine's suppliers benefit from transacting with a large business, which often has better systems and processes than small and medium sized enterprises. This can lead to improved performance of the mine's suppliers, either through procurement activities, or through "osmosis".

4 **Conclusion**

- 4.1 The marginal allocation of water to Macraes enables much greater (64 times) contribution to the regional economy than agriculture.
- 4.2 Our analysis of Macraes shows that it is a large economic entity in its own right. At a national level, exports (\$343 million), royalties (\$4.1 million) and GDP (\$237 million) are on par with a large business. By

revenue, Macraes would rank nationally 118 in the Deloitte Top 200 Index.

- 4.3 The local benefits are also significant. Macraes employs 603 directly, and in total supports 2,235 jobs across New Zealand, through purchases from suppliers and spillover effects.
- 4.4 For Waitaki District, Dunedin City and Otago Region, Macraes is a large economic entity.
- (a) It injects \$36.0 million into Waitaki District and supports 333 jobs directly and indirectly.
 - (b) It injects \$82.2 million into Dunedin City and supports 757 jobs directly and indirectly.
 - (c) It injects \$122.7 million into the Otago Region and supports 1,132 jobs directly and indirectly.
- 4.5 In the event of mine closure, these direct benefits will be lost. The gold resource would not be redeployed, and thus the economy would be smaller. Workers would be redeployed, but local economies do not offer comparable incomes and many would choose to live and work elsewhere, and local suppliers are unlikely to find a similar customer.
- 4.6 Macraes is a large economic entity, at a national, region (Otago) and district (Waitaki District and Dunedin City) level.

Date: 28 June 2023

Shamubeel Equb

