PORT OF TAURANGA LIMITED:
WHARF AND CONTAINER EXPANSION 2020

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INTRODUCTION

This report documents the economic impacts for both the Bay of Plenty Regional Council (BOP) economy and New Zealand (NZ) in total from a proposed wharf extension for the Ports of Tauranga Limited (POTL). For the analysis, 106-sector economic models for both the BOP and NZ economies covering the year ended December 2019 were employed. Sectors in the following analysis (outside the tables) are *italicized* for easy identification.

TABLE 1: SUMMARY STATISTICS FOR THE BAY OF PLENTY REGION IN NZ AS AT 2020

Economic Measure	New Zealand	Bay of Plenty	BOP Percent of NZ
GDP/GRP* for the year ended December 2019 $ billions	311.206	17.685	5.7%
Population as at June 2019	4,919,500	324,200	6.6%
Employment Count as at February 2019	2,283,979	136,289	6.0%
Value Added per Employment Count 2019 in dollars	$136,256	$129,761	95.2%

*GDP/GRP = Gross Domestic Product/Gross Regional Product (regions)

From Table 1 we can conclude that BOP is about 6% of the NZ economy. From 2013 (well after the Global Financial Crisis or GFC) to June 2020, the population growth rate for NZ was 1.72% p.a. whereas for BOP it was 2.49%. The BOP is one of NZ's fastest growing regions. Outside of NZ's major cities such as Auckland and Wellington, the BOP value added per worker at an estimated $129,761 per Employment Count worker (EC) is also one of the highest in NZ. Employment Count includes both full-time and part-time workers (often seasonal workers) employed.

CONSTRUCTION IMPACTS

The currently estimated wharf expansion cost at the Port of Tauranga (POT) totals s 9(2)(b) The sectors in our model involved in this expenditure are listed in Table 2. Note that only model sector totals are listed, and not individual firm amounts. Construction time is estimated at 20 months (1.67 years).

TABLE 2: SECTORS INVOLVED IN THE NEW WHARF CONSTRUCTION (EXPANSION)

Sector in Economic Model	$ mill
Non-Residential Building	s 9(2)(b)(ii)
Non-Building Construction	
Construction Services	
Scientific & Technical Serv.	
Employment & Business Serv.	
TOTAL	

The *Non-Building Construction* total includes s 9(2) for dredging and s 9(2) for roading. Inputs that would be sourced offshore are steel tubular pile casings, sheet-piles, fenders and wharf furniture. These would total s 9(2) or about 10% of the project cost.

Construction Services includes all plumbing, electrical wiring and air-conditioning involved with the project. From this direct expenditure to all suppliers, flow-ons follow in the BOP and NZ economies as workers on the project spend their wages etc. in the normal course of household expenditure as in *Supermarkets & Groceries, Travel & Tour Services* etc. The direct expenditure and resulting flow-ons are detailed in Table 3 for the four economic impacts Sales Revenue, Net (after tax) Household Income, Employment as in EC and Gross Regional Product the regional equivalent of national GDP.

TABLE 3: TOTAL ECONOMIC IMPACTS IN THE BOP & NZ ECONOMIES FROM WHARF CONSTRUCTION

Impact Round	Revenue $ m	Net HH* Income $ m	Employment Persons	Value Added or GRP** $ m
Direct impacts from the s 9(2)(b) wharf construction	s 9(2)(b)(ii)		60	s 9(2)(b)(ii)
Industrial backward linkages as in *Fabricated Metal Prod*			176	
Total impacts in the Bay of Plenty Regional Council			**236**	
Bay of Plenty Multiplier			*3.93*	
Flow-ons into the Rest of New Zealand			132	
Total impacts for all New Zealand			**368**	
New Zealand Multiplier			*6.13*	

*HH = Household **GRP = Gross Regional Product, the regional equivalent of GDP

All types of construction activity typically result in very high multipliers in the economy in which the project is being constructed. The Table 3 multipliers show that every $1 of the s 9(2)(b)(ii) on the project generates another $1.13 in the BOP regional economy and another 68c in the rest of NZ for a total of $2.81. Similarly, every one of the 60 workers directly employed on the project induces employment of another 2.93 workers somewhere in the BOP economy and another 2.20 workers elsewhere outside the BOP in the NZ economy (1 + 2.93 + 2.20 = 6.13). Note that 36 workers working on the wharf expansion for 20 months or 1 and two thirds years, is the equivalent of the direct Employment impact of 60 shown in Table 3. Furthermore, taxes paid to government by workers (PAYE) and firms (company tax) as well as GST supports employees in the *Local Government* and *Central Government* sectors. Typically, construction workers are highly paid and work considerable overtime and the Net Income and Employment multipliers are quite high as a result. Taking the total Employment impact for all NZ which is 368 persons over the 20 months construction time and dividing by the direct project cost of s 9(2)(b) gives a jobs-per-million dollars of project cost of 5.9 jobs. These jobs are in the BOP region and throughout NZ and would make a significant difference in economic activity for both economies.

From Table 3 we can conclude that the s 9(2) direct expenditure on the wharf expansion project induces supply links, both industrial inputs and household expenditure, totalling s 9(2)(b) in the BOP and a further s 9(2)(b) in the rest of NZ for a total of s 9(2)(b)(ii) Similarly, Employment linkages of supplying sectors to direct contractors and sectors servicing households total 308 persons – this includes full and part-time personnel. These linkages are deemed backward linkages as they link back to sectors supplying basic inputs such as *Electricity Generation*.

Table 3 also shows significant flow-on impacts from outside the BOP region from wider NZ as in 132 flow-on workers for the Employment impact. The economic model used to generate these estimates shows substantial imports of goods and services into the BOP for sectors such as *Primary Metals & Products* (pipes, castings), *Machinery Wholesaling*, *Communications* and *Computer Services* which will all be important for the wharf construction project.

Table 4 details the top 5 supplying sectors for both the Sales Revenue and Employment impacts. For the Employment linkage we see that *Food & Beverages* is number 3 in the listing indicating that expenditure on food and refreshments is a high priority for workers engaged in or linked to the project. Note that while the *Construction Services* sector will directly employ some workers for the project (i.e. some of the 60 above in Table 3), a further 64 workers (Table 4) will be linked to wharf construction for miscellaneous services required by direct contractors engaged in the construction as well as sectors servicing household expenditures. The inputs in Table 4 are for all NZ and not just the BOP. For example, *Petrol & Coal Manufacturing* comes from Northland or overseas. *Food & Beverage Services* on the other hand will come mostly from the BOP.

TABLE 4: NZ SECTORS GAINING MOST SUPPLYING GOODS & SERVICES TO THE WHARF EXPANSION

SALES REVENUE or OUTPUT			EMPLOYMENT		
	Inputs from supplying sectors			**Persons employed in supplying sectors**	
#	**Sector**	**$ mill**	**#**	**Sector**	**Persons**
1	Construction Services	s 9(2)(b)(ii)	1	Construction Services	64.43
2	Fabricated Metal Products		2	Fabricated Metal Products	18.94
3	Petrol & Coal Manufacturing		3	Food & Beverages	11.68
4	Wood Products		4	Employment & Admin Services	9.40
5	Non-Metallic Minerals (aggregates)		5	Wood Products	8.49
Top 5 supplying sectors			**Top 5 supplying sectors**		**112.94**
Remaining 101 sectors & Households			Remaining 101 sectors		195.06
Total Backward Revenue Links			**Total Backward Employment Links**		**308**

Table 4 shows that the *Construction Services* sector is both directly linked to the project (Table 2) but also indirectly linked with 64 persons employed in the wharf construction by supplying services to the direct wharf contractors. Furthermore, BOP and NZ households related to Port activity may employ construction workers to renovate and/or extend their homes in the normal course of living. The *Food & Beverages* sector is also indirectly linked through normal household expenditures by all workers, both directly employed and indirectly employed via the supplying sectors.

ANNUAL ECONOMIC IMPACTS FOR BOP AND NZ DUE TO INCREASED CONTAINER TRAFFIC

The wharf extension will expand container capacity throughput by 750, 000 containers or TEUs annually to a total volume of 2 m TEUs. The years taken to fully utilize this increased capacity have not been determined. In the last two years, container throughput expanded by 4.3% and 1.5% annually to 1,251,741 TEUs currently. The latest year was of course affected by the covid-19 outbreak. At a 5% increase per year, it would take 10 years from the time of construction completion to fully utilize all extra capacity.

At full capacity, 40 additional employees will be based at the POT to handle the increased traffic. This includes POTL employees, crane operators, stevedores etc. The annual gross salary for these additional employees will be in the range of $65,000 to $100,000 with an average estimated at $80,000. This makes for a direct, total gross wage bill of $3.2 m or $2.24 m net (after tax) household income. At full capacity, the extra POTL container revenue is estimated at s 9(2) in 2020 dollars. The annual economic impacts for the BOP and NZ economies deriving from this additional direct revenue are shown in Table 5.

TABLE 5: ECONOMIC IMPACTS IN THE BOP & NZ ECONOMIES FROM INCREASED CONTAINER THROUGHPUT AT CAPACITY DUE TO THE WHARF EXTENSION

Impact Round	Revenue $ m	Net HH* Income $ m	Employment Persons	Value Added or GRP** $ m
Direct impacts from the increased container traffic	s 9(2)(b)(ii)		40	s 9(2)(b)(ii)
Industrial backward linkages as in *Road Transport*			31	
Total impacts in the Bay of Plenty Regional Council			**71**	
Bay of Plenty Multiplier			*1.78*	
Flow-ons into the Rest of New Zealand			10	
Total impacts for all New Zealand			**81**	
New Zealand Multiplier			*2.03*	

*HH = Household **GRP = Gross Regional Product, the regional equivalent of GDP

Note that the multipliers in Table 5 from increased POT revenue are much lower than the construction multipliers in Table 3. Typically, construction activity exhibits the highest multipliers of any economic activity in regional or national economies.

The impacts in Table 5 are annual full capacity impacts assuming the extended wharf and facilities are fully employed. It may take 10 or more years for these impacts to be fully realized. Of course, other developments with NZ's port facilities could see these impacts realized in a shorter time frame (see section on Upper North Island Supply Chain Strategy below).

NZ sectors gaining most from POT's increased container traffic are listed in Table 6.

TABLE 6: NZ SECTORS GAINING MOST SUPPLYING GOODS & SERVICES TO POT CONTAINER THROUGHPUT

SALES REVENUE or OUTPUT			EMPLOYMENT		
Inputs from supplying sectors			Persons employed in supplying sectors		
#	Sector	$ mill	#	Sector	Persons
1	Non-Residential Property Services	s 9(2)(b)(ii)	1	Food & Beverages	2.70
2	Transport Support Services		2	Employment & Admin Services	2.20
3	Banking & Financial Services		3	Transport Support Services	2.03
4	Electricity Generation		4	Advert & Market Research Serv	1.71
5	Road Transport		5	Supermarkets & Groceries	1.61
Top 5 supplying sectors			**Top 5 supplying sectors**		**10.25**
Remaining 101 sectors & Households			Remaining 101 sectors		30.75
Total Backward Revenue Links			**Total Backward Employment Links**		**41**

Note that *Transport Support Services* includes all employment activities based at the POT as well as firms involved in freight forwarding and customs agency services. The *Non-Residential Property Services* sector includes activities such as container leasing as well as servicing syndicates for horses and livestock. The Employment Count for this sector in the BOP as of February 2019 was 360 and for all NZ it was 5,400 persons.

UPPER NORTH ISLAND SUPPLY CHAIN STRATEGY

In 2018, the NZ Government commissioned a review of and the development of a freight and logistics (supply chain) strategy for the Upper North Island. An independent working group was appointed to conduct this review. Their brief was to advise on the priorities for investment in rail, roads and other supporting infrastructure, and to consider moving the Ports of Auckland, giving Northport in Whangarei serious consideration. This report can be obtained by accessing the NZ website transport.govt.nz and then searching for the above section title as in Upper North Island etc.

The working group's final report (available as above) of November 2019 made 10 recommendations for development of ports in NZ of which 3 were:

1. Ports of Auckland CBD freight operation is no longer economically or environmentally viable and is constrained by landside infrastructure failure. It is in the interests of taxpayers and ratepayers that it be progressively closed, and the land it currently occupies be progressively rezoned for higher and better uses.
2. Northport should be developed to take over much or all of Auckland's existing and projected future freight business.
3. Port of Tauranga's existing expansion plans should proceed to accommodate growth.

The report estimated that currently around 30% of imports destined for Auckland already enter NZ through the POT with no additional cost to the customer and ultimate consumer. Furthermore, about 53% of NZ's freight originates in or is destined for the Northland, Auckland, Waikato and Bay of Plenty regions making the POT a vital link in the supply chain for exports of dairy products, meat, horticultural produce, logs and other goods which are vital for a continuing, prosperous NZ.

The latest information emanating from this report is available from the website.

CONCLUSIONS

NZ is very dependent on trade for its continued prosperity. The latest country figures for Exports/Imports as a percentage of GDP can be obtained from the World Integrated Trade Solutions website or wits.worldbank.org. Currently, the Exports/Imports percentages for NZ are 28.13/28.27 which are relatively high. By comparison, the numbers for Australia, the US and Japan are respectively 21.80/21.39, 12.22/15.33 and 18.45/18.19. These figures show that NZ is very dependent on good seaport logistics for cost effective and efficient exporting and importing. The POT wharf and container expansion will help ensure that NZ continues to be an effective trader in world commerce.

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