



Report to:

Marlborough Forest Industry Association

**THE ECONOMIC CONTRIBUTION OF THE
FOREST INDUSTRY
TO THE
MARLBOROUGH REGION**

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The Economic Contribution of the Forest Industry to the Marlborough Region

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A special thank you to Carolyn Parkes, who kindly hosted BERL staff during our field work in Marlborough.

2 Executive Summary

This report aims to summarise the economic contribution of the Marlborough forest growing and processing industries (the forest industry) to the Marlborough regional economy.

Marlborough is a new but growing player in the national forestry picture. It currently harvests around 750,000 cubic metres of logs annually, and this could increase to around 1.5 million cubic metres over the next 15 years. Within the Nelson/Marlborough region, Marlborough accounts for only 28 percent of the harvest, but has approximately 40 percent of the planted production forests.

In 2007, the forest industry in the Marlborough region employed 456 Full-Time Equivalents (FTEs) in approximately 350 businesses.

Between 1994 and 2007, employment and the number of businesses in the Marlborough forest industry have steadily increased. Employment has risen from 389 in 1994 to 456 in 2007, an increase of 67 FTEs, or 1.2 percent per annum. The number of businesses has grown from 120 in 1994 to 350 in 2007. This is a growth rate of 8.1 percent per annum, which is well above the average annual business growth rate for the region of 4.9 percent per annum.

Looking at the economic impact of the forest industry on the Marlborough region, once multiplier effects are included, the forest industry had an output of \$418 million, generated \$170 million in regional GDP, and employed almost 1,100 FTEs in 2007.

Further, applying input – output analysis, the Marlborough forest industry sourced 42 percent of its inputs from within the Marlborough region, while over 60 percent of its outputs were exported outside of the Marlborough region. This suggests that the forest industry is a key contributor to the region in terms of encouraging economic activity.

More than half of the logs harvested from Marlborough forests are exported out of Shakespeare Bay as logs, mainly to South Korea and India. A further 24 percent is exported to Nelson for processing and 24 percent is processed in Marlborough. The residues, waste wood and firewood, make a significant contribution to the energy requirements in the region, with Marlborough's domestic wood burners providing around 15 megawatts of heat to the region.

Forestry and logging and solid wood processing are major users of, and therefore contributors to, infrastructure such as roading, ports, and energy. Shakespeare Bay has around 10 hectares of flat open land adjacent to the berth, is well separated from residential

areas and allows log loading to occur 24 hours a day. Approximately \$31 million of logs were exported from Shakespeare Bay in 2007. And over the last year there has been a 19 percent increase in the volume of logs exported.

The forest industry has environmental benefits in terms of reducing erosion, improving water quality, utilising marginal land, and as a carbon sink. The forest industry provides social benefits in terms of forest land being used for recreational activities such as hunting, walking, horse riding or biking. All of these benefits accrue to the region, along with the aforementioned economic benefits of employment and exports.

Forecasts and Challenges

Historical planting patterns in the Marlborough region means there is an increasing amount of wood that could be harvested. How much is harvested depends on the harvest decisions of large and small forest owners. While large forest-owners intent is known, small forest owners will tend to delay harvesting until returns are high. Hence, forecasting the harvest timing is relatively difficult.

However, based on a split non-declining yield scenario, the Marlborough harvest could reach one million cubic metres by 2010, increasing to 1.5 million cubic metres per annum from 2023 and then reducing to around 1.1 million cubic metres from 2034. This is a significant increase on the current harvest of between 750,000 and 850,000 cubic metres per annum.

This raises a major challenge in itself, in terms of how to deal with the increased harvest and maximise the value added within the region. There is potential to increase processing capacity and to develop another large sawmill in the region. An increase in the harvest also means a need to improve infrastructure through Port Marlborough. The main way to do this is to improve the consistency of supply, or to provide a minimum harvest level from which to plan infrastructure and processing investment. This is made difficult by the large presence of small forest owners, whose intentions are clearly to sell when returns are high.

Ensuring consistency of harvest would go way towards dealing with issues around infrastructure including development at the port, increased processing capacity, addressing labour supply issues, and ensuring the effective operation of suppliers to the industry. This is the main challenge facing the MFIA.

Shakespeare Bay is well situated for future expansion and development as an export port for the Marlborough region, both in terms of accessibility and growth possibilities. Coastal shipping, growth in forestry, expansion beyond bulk cargoes, other export industries in Marlborough and flow-over due to constraints in Port Nelson are some of the future

opportunities. This may not only encourage greater use of the port facilities, but could also attract new export industries to the region, expanding employment, output and GDP.

A further challenge is around improving the profile of the industry in the region. The industry needs to continue to work on improving its public profile in the region (and it is making significant progress) if it is to get support from local and central government, and attract investment and labour. This challenge is made potentially more difficult by the forest industry operating in the shadow of the viticulture industry, which has a very positive profile in the region.

The industry provides employee benefits such as the ability to earn high wages, be self-employed, work flexible hours such as early starting times in the summer, and work outdoors where you have access to prime hunting and fishing opportunities.

Through better coordination and management practises to encourage ecological and social benefits, the forest industry has the potential to contribute significantly more to the region.

The proposed emissions trading scheme (ETS) is a challenge and an opportunity. Approximately half of the forest area in Marlborough was planted before 1990 and under the draft legislation qualifies for emission units. Small land-owners with less than 50 hectares of pre-1990 forest on 1 September 2007 can apply for an exemption from the ETS. The MFIA needs to properly assess the likely impacts of the ETS on their region, and identify a strategy to maximise the opportunities and minimise the negative effects of this scheme.

Finally when considering a strategy for Marlborough forests, it is important to remember that Nelson plays an extremely important role. The inter-relationships are deep, as are the synergies. Any regional strategy needs to consider both Nelson and Marlborough.

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3 Introduction

The purpose of this report is to provide an overview of the Forestry and Logging and Solid Wood Processing sectors in the Marlborough region through:

- presenting the contribution of the Forestry and Logging and Solid Wood Processing sectors to the Marlborough region
- providing an economic impact assessment of the Forest and Logging and Solid Wood Processing sectors in the Marlborough region
- qualitative discussion on the strategic implications, key themes and obstacles identified in the previous two bullets.

Section 4 provides a profile of the forest industry, outlining where the industry is located, its size, and how it relates to other industries in the Marlborough region.

Section 4 presents an economic impact analysis of the forest industry. This economic impact analysis examines employment, business units, and the contribution of the industry to regional GDP. It also looks at those industries providing input into the forest industry as well as where outputs flow to.

Section 5 discusses the infrastructure supporting the forest industry such as the Port, roading and energy, while Section 6 examines future growth in the industry. Section 7 discusses some of the future opportunities and challenges facing the industry.

4 Profile of the Marlborough Forest Industry

This section of the report describes the stocked forest area, wood flow and economic activity of the forest industry. It also compares employment numbers in the forest industry with other primary industries in the region, and examines forestry land use compared to other land use in Marlborough.

We have considered the forest industry as a whole, but to aid analysis we have also looked at two sectors within the industry:

1. Forestry and Logging, which focuses on planting, harvesting and log exports
2. Solid Wood Processing, which focuses on the transformation of logs into wood products.

These sectors are consistent with the industry breakdowns used by Statistics New Zealand. The breakdown also enables a more detailed understanding of two quite different processes (which have different trends and issues) in the one industry.

4.1 A Significant Industry Player

The Marlborough region is a significant player in the New Zealand forest industry. By territorial authority, the Marlborough District has the seventh largest planting of radiata pine in New Zealand. Nelson/Marlborough is the fourth largest plantation forestry region behind the Central North Island, Northland, and the Southern North Island.

Within the Nelson/Marlborough region, Marlborough accounts for 28 percent of the harvest but has approximately 40 percent of the planted production forests.¹

In the mid 1960s, central and local government, as well as a number of small private companies, recognised the potential for plantation forests in the Marlborough region. This led to significant planting that started in the 1970s and continued through to the mid 1990s. Hence, Marlborough has a relatively young forest industry, with the average age of trees being 14.4 years.²

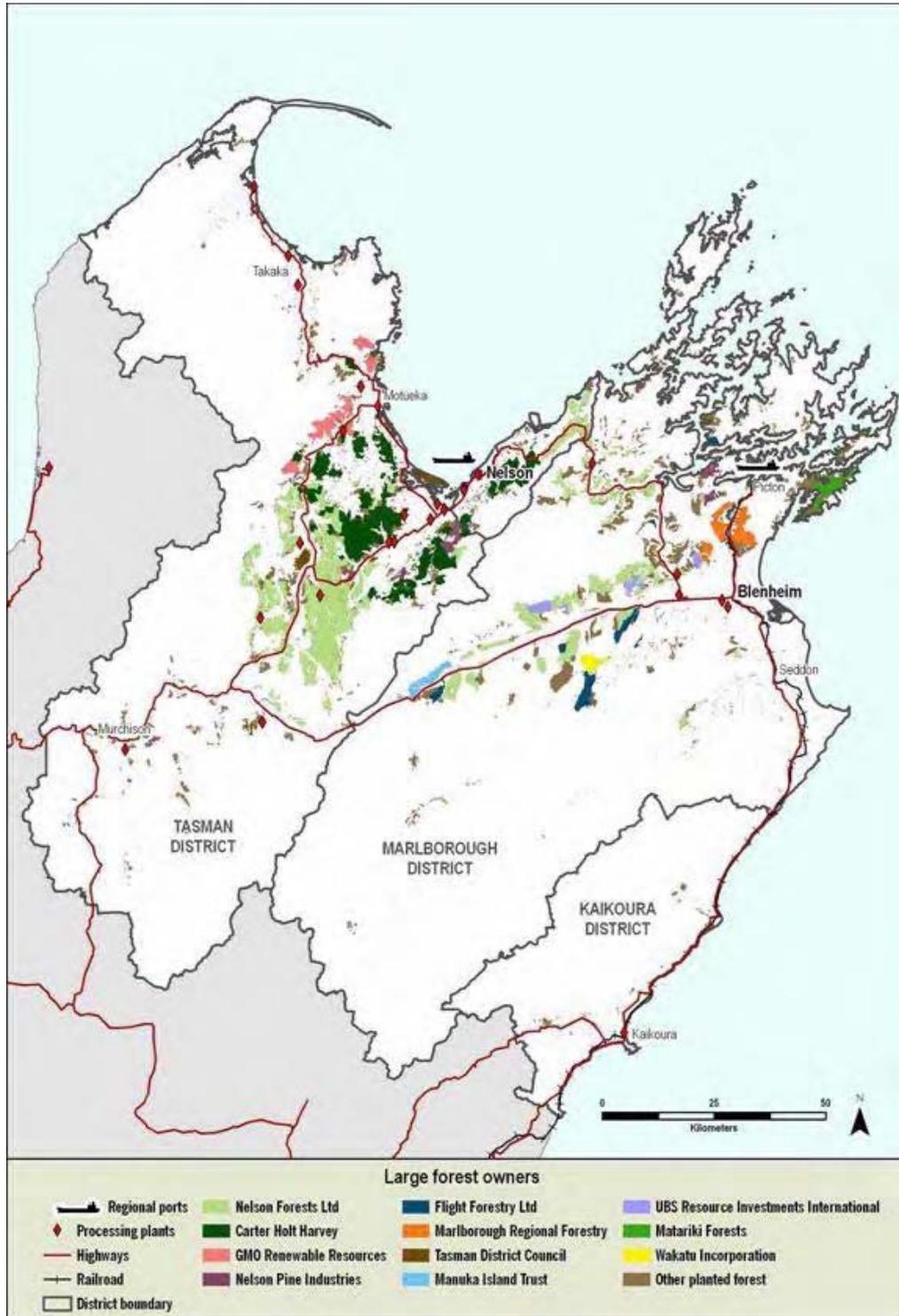
¹ As at 1 April 2005, MAF

² The average harvesting age of radiata pine in New Zealand is 31 years.

The main forested areas in the Marlborough region are the northern and southern sides of the Wairau River valley, around the Rai valley and Canvastown, and throughout the Marlborough Sounds.

Marlborough has excellent growing conditions for radiata pine, which is the dominant species in the region. Trees mature between ages 28 and 32 years. Radiata pine makes up over 95 percent of the planted forest area. Douglas-fir is the next most common species in the Marlborough region accounting for close to three percent. The balance consists of cypresses, eucalypts, and other softwood and hardwood species.

Figure 4.1. Marlborough, Nelson and Kaikoura Production Forests 2006



Source: Ministry of Agriculture and Forestry (2007). Nelson/Marlborough Forest Industry and Wood Availability Forecasts 2006.

At 1 April 2006, the stocked forest area of the Marlborough region was 71,856 hectares.³ To put this in context, the forest industry in the Marlborough region accounted for:

- 3.3 percent of New Zealand's available domestic harvest⁴
- 4.4 percent of New Zealand's forestry land area.⁵

In the latest year of available data (2005), around 646,500 cubic metres of logs were harvested from Marlborough forests. It is estimated that the 2006 to 2007 harvests were between 750,000 and 850,000 cubic metres.

More than half of the logs harvested from Marlborough forests are exported out of Shakespeare Bay as logs. These exported logs are mainly destined for South Korea and India. In 2006, 73 percent of log exports went to South Korea, while 27 percent went to India. Three companies facilitate log exports from the Marlborough region; Zindia, Nelson Forests Limited and Rayonier.

Some wood harvested from Marlborough forests is also transported to the Nelson region as logs. These logs are exported, or processed into LVL, MDF and posts and poles.

A small volume of logs from the Marlborough region is also transported to the West Coast and Canterbury.

Most solid wood processing in the Marlborough region occurs within 12 kilometres of Blenheim. The two largest solid wood processing plants in the region are Nelson Forests Limited and Flight Timbers Limited. Nelson Forests Limited has operated their mill since early 2000, when Nelson Forests Joint Ventures bought McVicars sawmill at Renwick and renamed it the Kaituna sawmill. Flight Timbers opened their new sawmill in Blenheim in 2005. There are also two smaller processors in the region, Rapaura Timber and Dashwood Treated Timber and Posts.

Logs from the Marlborough region that are processed into sawn timber of various grades, and with varying degrees of processing, are exported principally through Port Nelson to Australia, Asia, the United States and Europe. At present no sawn timber is exported from

³ Ministry of Agriculture and Forestry (2007). A National Exotic Forest Description as at 1 April 2006.

⁴ The Nelson/Marlborough region accounts for around 11.6 percent of national roundwood removals (as at March 2007). As Marlborough made up around 28 percent of the region's harvest (year ending Dec 2005) we can conservatively estimate that the Marlborough region accounts for around 3.3 percent of the national harvest, considering that the Nelson forests have reached sustainable yields for the last few years.

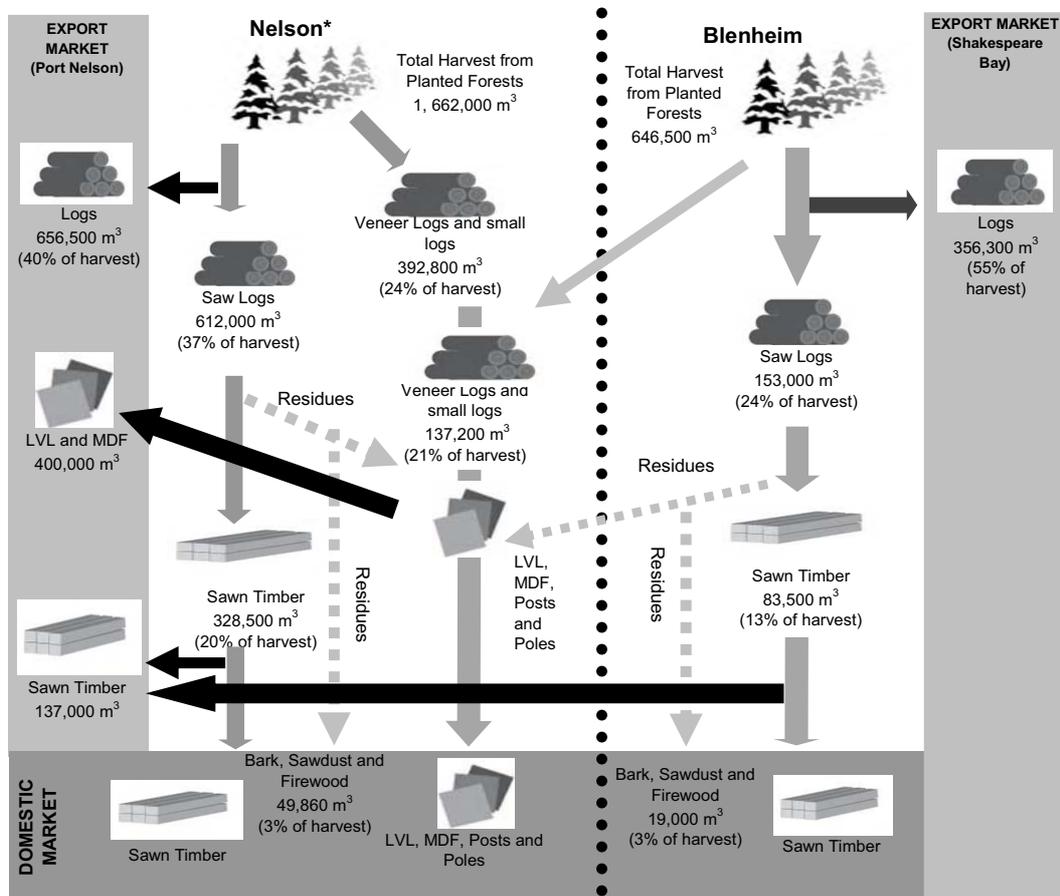
⁵ Statistics New Zealand. 2002 Agricultural Production Census.

Shakespeare Bay. Sawn timber from the Marlborough region is also sold on the New Zealand domestic market for use in the building and construction industry.

In 2007, the Solid Wood Processing sector in the Marlborough region accounted for 6.3 percent of New Zealand's log exports.⁶

Figure 4.2 below illustrates how wood harvested from Marlborough forests is exported as logs or sent for further processing in Marlborough or Nelson. The flow of these processed products to the domestic and export markets is shown. It also illustrates how the Nelson and Marlborough forest industries are interlinked.

Figure 4.2. Wood Flow in the Marlborough and Nelson Forest Industries, 2005



Source: derived from MAF (2006) 'Nelson/Marlborough Forest Industry and Wood Availability Forecasts'.

The obvious conclusion from Figure 4.2 is the inter-relationship between the Marlborough and Nelson forest industries. Without Nelson, Marlborough would have a limited market for veneer, small logs or residues. This would adversely affect the value of the forest industry in the Marlborough region.

⁶ This figure is for the year ending June 2007 and excludes domestic logs.

In 2005, Marlborough had a total harvest of 646,500 cubic metres. Over half of the harvest from the Marlborough region is exported as logs through Shakespeare Bay. Of the remainder, 13 percent is processed in the Marlborough region and a further three percent of harvest (residue) is used in the Marlborough region. Sawn timber is either sold in the domestic market, or exported through Port Nelson.

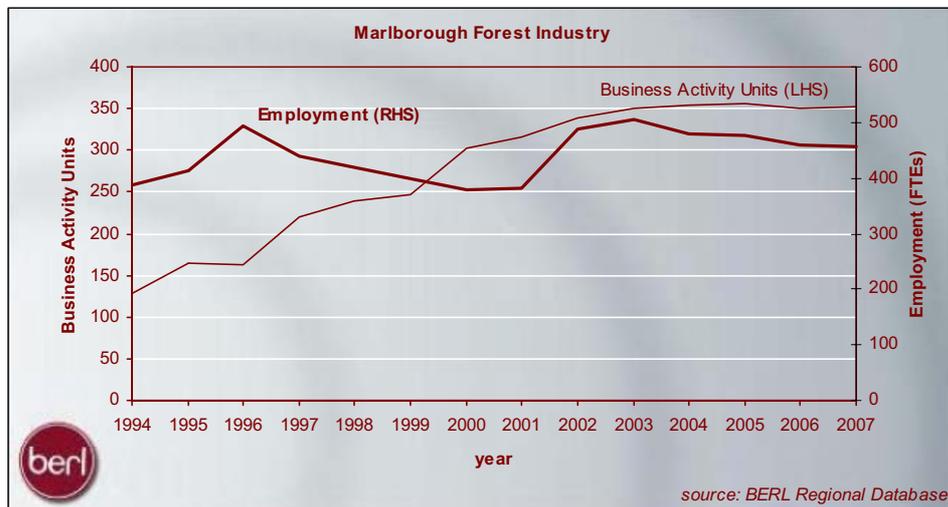
4.2 Economic Activity in the Marlborough Forest Industry

In 2007, 456 Full-Time Equivalent (FTEs) were employed in approximately 350 businesses in the forest industry in the Marlborough region.

A range of service industries provide support to the Marlborough forest industry including business and financial services, transport and storage, engineering, biosecurity and construction. Ports, and port services such as stevedoring, also play an important role in transporting logs and wood products to other regions and overseas export markets.

Figure 4.3 below illustrates activity in the forest industry in the Marlborough region over the last 13 years. It shows the number of businesses and subsequent employment between 1994 and 2007. During this period the industry has experienced new planting from the early to mid 1990s, and constant harvesting from 2002.

Figure 4.3. Activity in the Marlborough Forest Industry, 1994 to 2007



The number of businesses comprising Marlborough forest growing and processing industries has grown from 120 in 1994 to 350 in 2007, which is a growth rate of 8.11 percent per annum. This is well above the average annual business growth rate for the region of 4.85 percent per annum.

Employment has risen from 389 in 1994 to 456 in 2007, an increase of 67 FTEs, or 1.22 percent per annum.

4.3 Sector Analysis - Forestry and Logging

In 2007, 185 FTEs were employed in 320 businesses in the Marlborough Forestry and Logging sector, which is made up of three sub-sectors: Forestry; Logging; and Services to Forestry.

The split between the three sub-sectors is shown in Table 4.1.

Table 4.1. Marlborough Forestry and Logging Sector, 2007

Marlborough Forestry and Logging 2007	FTEs	Business Units
Forestry	33	271
Logging	99	15
Services to Forestry	54	34
Forestry and Logging Total	185	320

source: BERL Regional Database

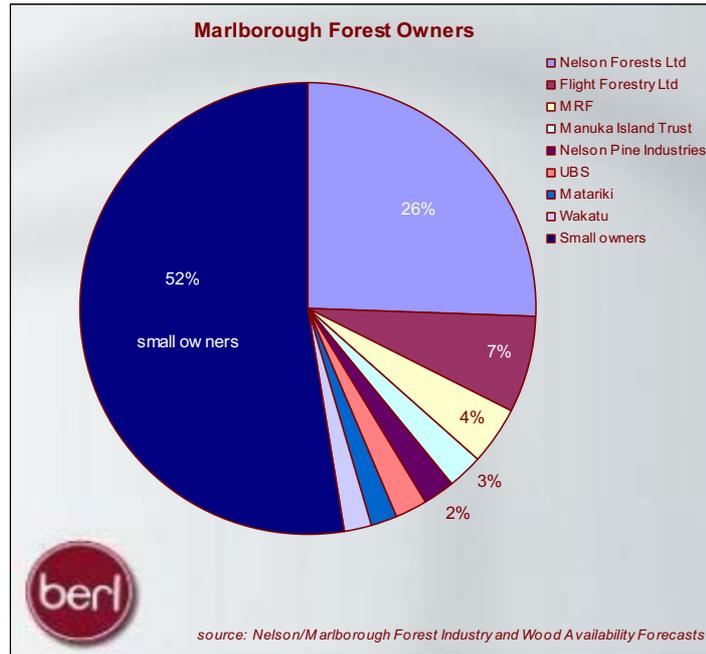
The Forestry sub-sector includes forest owners and silviculture contractors. This sub-sector in 2007 had the majority of businesses in the Forestry and Logging sector, at 85 percent, but accounted for the smallest proportion of employment, at 18 percent.

The Logging sub-sector was the largest employer in this sector, accounting for around 54 percent of employment, but had the smallest number of businesses at five percent.

The Services to Forestry sub-sector is made up of forestry management businesses and specialist forestry services such as earthmoving businesses. These businesses in the Marlborough region were relatively small, with the average number of FTE's per business being 1.6.

There are eight large forest owners and a large number of small forest owners in the Marlborough region. Figure 4.4 below illustrates the breakdown of forest ownership in the Marlborough region in 2006.

Figure 4.4. Forest Owners in the Marlborough Region, 2006



The largest of the forest owners are Nelson Forests Limited, Flight Forestry Limited and Marlborough Regional Forestry (MRF). MRF is owned by the Marlborough and Kaikoura District Councils, while Nelson Forests Ltd and Flight Forestry Ltd are privately owned companies.

While large-scale forest owners are an important part of the forest industry in Marlborough, over 50 percent of Marlborough’s plantation forests are owned by small forest owners. Small forest owners by definition have forests of less than 1,000 hectares. In the Marlborough region this means that, of the 72,000 hectares of forest, 37,000 hectares are owned by small forest owners.

Contracting companies play an important role in the forest industry, particularly in the Forestry and Logging sector. Contractors are used in forest planning and establishment, silviculture and mensuration, harvesting, roading, and transporting logs to customers.

Most of the large logging contractors are based in the Nelson region, as forestry and logging is well-established in this region. However, there are 10 to 12 fully-equipped logging crews permanently based and working in the Marlborough region. As harvesting levels in the Marlborough region increase, we can expect a higher proportion of contractors to base themselves there.

Forest management companies in the Marlborough region include Merrill and Ring New Zealand Limited, Tasman Forest Management, PALMS, PF Olsen and Mackenzie Forest

Management. Together these five companies manage around 22,000 hectares of forest in the Marlborough region. Flight Forestry Ltd and Nelson Forests Ltd manage their own forests.

Earthmoving and transport companies are drawn from the Marlborough or Nelson region, depending on where harvesting is occurring and where logs are being transported to.

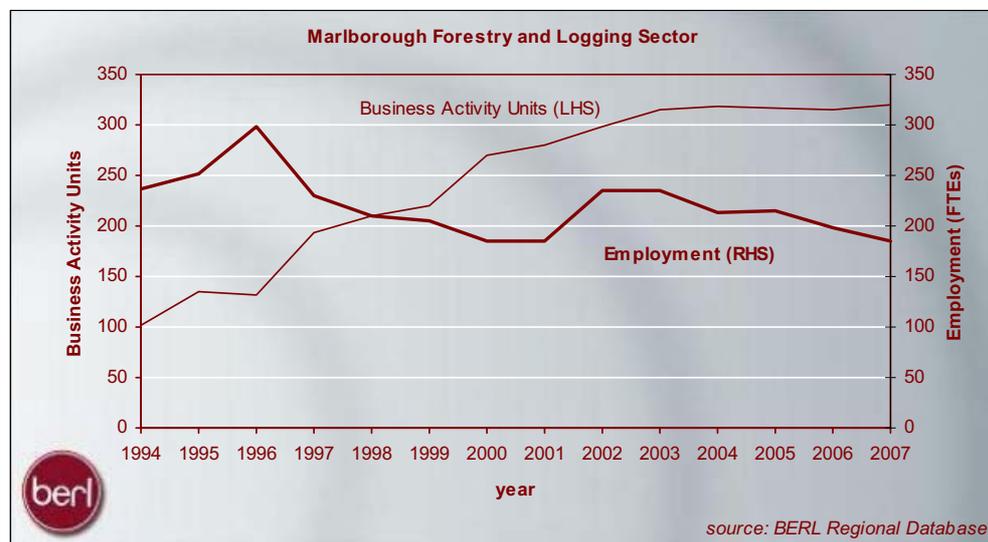
Three tug and barge services transport logs from forests in the Marlborough Sounds to Picton, Havelock or Nelson. Generally, logs barged from the Queen Charlotte Sound and Tory Channel are taken to Picton. Domestic logs from the Pelorus and Kenepuru Sounds are taken to Havelock, while export logs from this area are barged to Picton.

There is significant business activity in firewood in the Marlborough region, which derives from the forest industry. Firewood cutting from forests is captured in this analysis. However, firewood cutting, retailing, and wholesaling, is captured in the retail and wholesaling sectors.

4.3.1 Activity in the Marlborough Forestry and Logging Sector

Figure 4.5 below illustrates trends in employment and business unit activity in the Marlborough Forestry and Logging sector between 1994 and 2007.

Figure 4.5. Activity in the Marlborough Forestry and Logging Sector, 1994-2007



From 1994 to 2003, the number of business units in the Forestry sub-sector steadily increased. This growth was largely driven by an increase in the number of small forest owners in the region, and reflects the increase in planting throughout the 1990s. Business units in the Logging sub-sector remained steady throughout the period at 15, while the

number of businesses in the Services to Forestry sub-sector increased from 14 in 1994 to 34 business units in 2007.

Employment levels have fluctuated depending on what harvesting has occurred in the region each year. The focus on planting in the early 1990s is reflected in employment, which fell from 1996 through to 2001, recovered in 2002, and eased through to 2007. Employment in the Forestry sub-sector has fallen from a peak of around 100 FTEs in 1997 to only 33 in 2007 due to the completion of silviculture work on the early 1990s plantings. Employment in the Logging sub-sector has increased from 68 in 1994 to 99 in 2007, while employment in the Services to Forestry sub-sector has fallen from a high of 110 in 2003 to 54 in 2007.

4.4 Sector Analysis - Solid Wood Processing

The Solid Wood Processing sector in Marlborough predominantly consists of Log Sawmilling and Wooden Structural Component Manufacturing. In 2007, the Solid Wood Processing sector in the Marlborough region had 32 business units employing 270 FTEs.

Employment and business units in the five sub-sectors⁷ that make up the solid wood processing sector are shown below in Table 4.2.

Table 4.2. Marlborough Solid Wood Processing Sector, 2007

Marlborough Solid Wood Processing 2007	Business	
	FTEs	Units
Log Sawmilling	146	7
Timber Resawing and Dressing	6	1
Wooden Structural Component Manufacturing	92	16
Wood Product Manufacturing nec	24	7
Paper Product Manufacturing nec	3	1
Wood Processing Total	270	32

source: BERL Regional Database

The Log Sawmilling sub-sector is made up of sawmilling, timber drying, preservative treatment, planning and moulding. Sawmilling is a major employer within the Solid Wood Processing sector, employing 146 FTEs in seven businesses in 2007.

The two main sawmills in the region are Nelson Forests Limited in Kaituna and Flight Timbers Ltd in Blenheim processing between 150,000 and 180,000 tonnes of logs per year. Rapaura Timber Limited processes around 7,000 tonnes of logs a year and Dashwood Treated Timber and Posts processes around 1,000 tonnes. The remaining business units are portable sawmills.

⁷ Note that nec in the title of some sub-sectors is an acronym for not elsewhere classified, and is a general "catch all" for activity that does not fit into other sub-sectors in the industry.

The second largest sub-sector in solid wood processing in 2007 was Wooden Structural Component Manufacturing, which employed 92 FTEs in 16 businesses. This sub-sector includes businesses engaged in finger-jointing, door and window manufacturing, precut and pre-nail frames and trusses, and joinery for buildings, including kitchens.

A smaller sub-sector in the Marlborough Solid Wood Processing sector is Wood Product Manufacturing nec, which employed 24 FTEs across seven businesses in 2007. These businesses are engaged in ornamental woodwork, picture or mirror frame manufacturing, wood turning and trellis manufacturing.

Residues from solid wood processing, such as bark, sawdust and firewood, are largely used within the Marlborough region with woodchips sent to Nelson for use in MDF processing.

4.5 Activity in the Marlborough Solid Wood Processing Sector

Figure 4.6 illustrates trends in employment and business unit activity in the Solid Wood Processing sector between 1994 and 2007.

Figure 4.6. Activity in the Marlborough Solid Wood Processing Sector, 1994-2007



The number of solid wood processing business units in the region has been relatively constant, growing by a net seven units between 1994 and 2007. The number of businesses peaked at 39 in 2005. Business unit growth in the Solid Wood Processing sector has been slower than total business unit growth in the Marlborough region, recording 2.1 percent per annum growth compared to total business unit growth in the region of 4.6 percent per annum. However, compared to national figures, business units in Marlborough have grown faster than the national average with the national rate being 1.8 percent per annum.

Employment in the Solid Wood Processing sector in Marlborough has grown at a faster rate than the region as a whole, averaging 4.5 percent per annum compared to 2.7 percent per annum across all industries in the region.

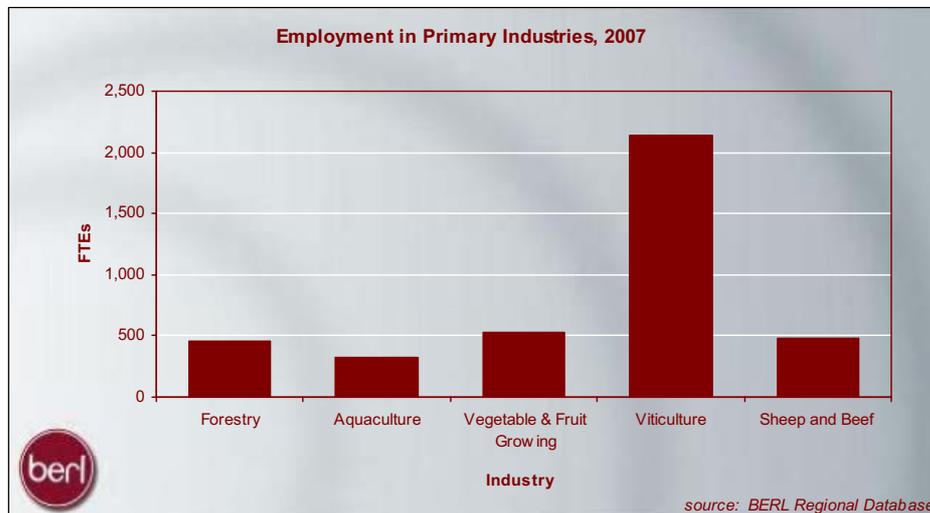
Employment peaked in 2003, and has fallen slightly each year since. Compared to nationally, where employment in the Solid Wood Processing sector in 2007 was similar to the level it was at in 1994, the Marlborough region's Solid Wood Processing sector is doing very well.

As harvesting levels in the Marlborough region increase, solid wood processing plants have the capacity to increase their production by expanding their facilities, improving productivity through plant and machinery investment, increasing the number of shifts they are operating, and/or employing extra staff. There is also the potential to develop another sawmill in the region.

4.6 Employment in Other Primary Industries in the Marlborough Region

Figure 4.7 compares employment in the major primary industries in the Marlborough region in 2007.

Figure 4.7. Employment in the Primary Industries in the Marlborough Region, 2007



In 2007, viticulture was the largest primary industry in the Marlborough region employing 2,140 FTEs. The viticulture industry includes grape growing, harvesting and wine making.

Of the 2,140 FTEs employed in viticulture, 88 percent were employed in grape growing, which also had the largest number of businesses at 650. Between 2006 and 2007, the number of businesses in grape growing increased by 79.

The fruit and vegetable growing and processing industry in Marlborough employed 530 FTEs in 2007. The largest area of employment in this industry was fruit and vegetable processing with 234 FTEs. Vegetable growing was also a large area of employment with 180 FTEs.

While the number of people employed in fruit and vegetable growing is slightly larger than the forest industry, the forest industry in Marlborough has a larger number of business units. In 2007, the forest industry had 352 business units while the fruit growing industry had 148 business units.

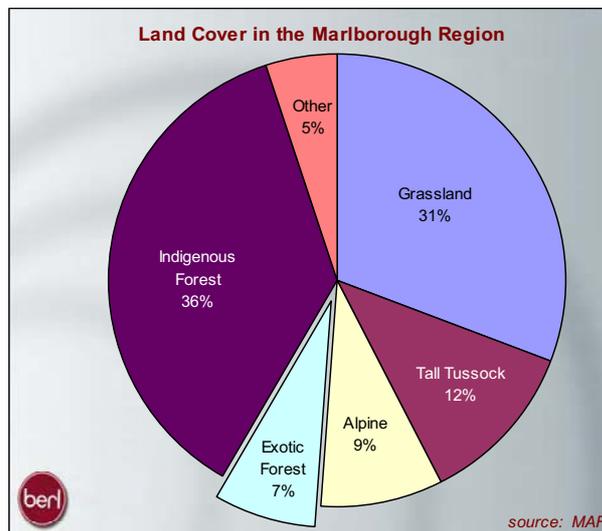
In 2007, 486 FTEs were employed in sheep and beef farming and meat processing in 519 business units. The majority of people in this industry were employed in sheep farming, with 335 FTEs.

Aquaculture in the Marlborough region employed 323 FTES in 2007. Between 2000 and 2007, the number of businesses in the aquaculture industry in the Marlborough region has remained fairly stable at around 105.

4.7 Land Use in the Marlborough Region

Figure 4.8 below shows land use in the Marlborough region in 2007.⁸ As illustrated, the majority of land in the region is covered in indigenous forest.

Figure 4.8. Land Use in the Marlborough Region, 2007



In 2007, indigenous forest land accounted for around 36 percent of the Marlborough region's total land use. Exotic forest (or plantation forest) accounted for around seven percent of land

⁸ Please note we have not included aquaculture in this land use profile. Aquaculture in the Marlborough region covers an area of close to 3,000 hectares of ocean.

use in the region. Viticulture tends to occur in the grassland category, along with fruit and vegetable growing and sheep and beef farming.

5 Economic Impact of the Marlborough Forest Industry

This section discusses the economic impact of the forest growing and processing industries on the Marlborough region. It examines the total contribution the Marlborough forest industry makes to regional output, employment and Gross Domestic Product (GDP).

The total economic impact takes into account the indirect and induced effects of the activity generated by the industry. That is the activity generated by suppliers to the industry and the subsequent employment expenditure from those employed in the industry and the industries that supply it.

Multipliers are generated from input-output tables, which show the industry flows into and out of industries in the region. This section also uses the regional input-output tables to illustrate where inputs into the Marlborough forest industry come from and where outputs from the industry go to.

The tables in this section illustrate key input industries and those industries that rely on the Marlborough forest industry to use their outputs.

A breakdown of the economic impacts of the two major sectors of the Marlborough forest industry, Forestry and Logging and Solid Wood Processing are in chapter 9.

5.1 Economic Impact of the Marlborough Forest Industry

As mentioned in section 4.2, the BERL regional database shows that, in the year to March 2007, the Marlborough forest industry employed 456 FTEs in over 350 businesses. The industry contributed \$84 million to the Marlborough region's GDP.

Table 5.1 shows the direct contribution of the Marlborough forest industry to employment, GDP and businesses relative to the regional economy and the national forest industry.

The second part of the table shows the multiplier effects, or the total contribution of the forest industry to the Marlborough regional economy.

Table 5.1. Economic Impact of the Marlborough Forest Industry, 2007

Marlborough Forest Industry	Total	% of regional economy	% of national forestry sector
Employment (FTEs)	456	2.17	1.42
GDP (\$mn)	84	4.41	1.77
Business units	352	5.13	4.27

Multiplier effects	Direct	Total
Output (\$mn)	234	418
GDP (\$mn)	84	170
Employment (FTEs)	456	1,090

source: BERL regional database, Statistics NZ

The forest industry directly accounted for 2.17 percent of employment, 4.41 percent of GDP and 5.13 percent of businesses in the Marlborough region.

Including indirect and induced effects, the forest growing and wood processing industries had a total output of \$418 million, generated \$170 million in regional GDP, and resulted in the employment of 1,090 FTEs in the Marlborough region in 2007.

Including indirect and induced effects, the forest industry generated \$170 million in regional GDP and employed 1,090 FTEs in the year ending March 2007.

5.2 Key Industry Inputs and Outputs

Regional input-output tables identify where inputs into the forest industry come from and where outputs from the industry go to.

Table 5.2 breaks down forest industry activity into input and output components. It shows each components proportion of the forest industry and the Marlborough region total.

Table 5.2. Marlborough Forest Industry Input Output Table, 2007

Marlborough Forest Industry	% of sector	% of regional
Inputs		
Intermediate inputs	42.26	2.45
Imports	22.17	2.44
Wages and other household income	13.85	3.25
Other inputs	21.72	2.22
Outputs		
Intermediate outputs	35.67	2.07
Exports	60.73	5.73
Household and government consumption	0.79	0.17
Other outputs	2.81	1.57

source: BERL, Butcher & Associates

Looking first at inputs into the forest industry, 42.3 percent of goods and services used in the forest industry came from other industries in the Marlborough region. These are defined as intermediate inputs, and include goods and services such as chainsaws, petrol, accountancy services etc.. A further 22.2 percent of goods and services were imported from outside of the Marlborough region. Labour (wages and other household income) accounted for 13.9 percent of the inputs into the Marlborough forest industry, with the remaining 21.7 percent of inputs made up of taxes and profits.

Looking at outputs, 35.7 percent of production from the forest industry went into other industries in the Marlborough region (largely the solid wood processing industry) while 60.7 percent was exported as logs. The remaining 3.6 percent went into household and government consumption, and other outputs (which includes reinvestment in capital and stock).

In 2007, the Marlborough forest industry sourced over 40 percent of its inputs from within the Marlborough region, while over 60 percent of its outputs were exported outside of the region.

The top 10 industries providing inputs into the Marlborough forest industry are presented in Table 5.3.

Table 5.3. Key Input Industries into the Marlborough Forest Industry, 2007

Marlborough Forest Industry	% of sector inputs
1 Forestry	11.97
2 Road freight transport	5.81
3 Logging	4.68
4 Services to agriculture, hunting and trapping	4.14
5 Services to forestry	2.49
6 Log sawmilling and timber dressing	2.28
7 Wholesale trade	1.56
8 Business administrative and management services	1.42
9 Retail trade	0.92
10 Finance	0.67

source: BERL, Butcher & Associates

The top six industries providing inputs into the Marlborough forest industry in 2007 were all forestry-based. However, the next four were general industries providing goods and services to the industry, namely wholesale and retail trade, business services, and finance.

Together, forestry-related industries accounted for 75 percent of intermediate inputs into the Marlborough forest industry in 2007, and the top 10 industries accounted for around 85 percent of all intermediate inputs.

Some industries in Marlborough were particularly reliant on the forest industry in 2007. Table 5.4 below shows the industries which had significant levels of input into the Marlborough forest industry.

Table 5.4. Marlborough Industries Reliant on the Forest Industry, 2007

Marlborough Forest Industry		% of contributor industry output
1	Logging	90.80
2	Services to forestry	85.30
3	Road freight transport	27.02
4	Forestry	19.69
5	Business administrative and management services	11.98
6	Services to agriculture, hunting and trapping	11.06
7	Log sawmilling and timber dressing	11.06
8	Scientific research	8.91
9	Other Horticulture	6.31
10	Other industrial chemical manufacturing	5.61

source: BERL, Butcher & Associates

Four forest-based industries were heavily reliant on the Marlborough forest industry in 2007. These industries were Logging, Services to Forestry, Forestry, and Log Sawmilling and Timber Dressing. Logging and Services to Forestry were heavily reliant, with 90.8 percent and 85.3 percent of their outputs respectively going into the forest industry.

It is also interesting to note the other industries in the Marlborough region which are reliant on the forest industry for a significant proportion of their outputs. For example, 27 percent of road freight transport in the Marlborough region was forestry related, 12 percent of business administration and management services was related to the forest industry, and 8.91 percent of scientific research in the Marlborough region was forestry related.

Other horticulture includes: seed growing; aerial agricultural services such as spraying, topdressing and seed services; rural land clearing; and pest control that is not aerial. In 2007, 6.31 percent of the outputs from this industry went into the Marlborough forest industry.

Other industrial chemical manufacturing includes pest control chemicals, and in 2007 the Marlborough forest industry consumed 5.61 percent of the outputs from this industry.

5.3 Other economic benefits of forests

Aside from the growing, logging and processing of wood, there are other economic benefits derived from the forest industry.

A significant economic benefit derived from the forest industry is firewood. Activity around this industry is only partly captured in this study. Firewood retailing and wholesaling activity

is recorded in the retail and wholesale industries and so is not captured here. We understand a number of people are employed in this industry. A study has estimated that in the Marlborough region, domestic wood burners use around 5,000 tonnes of wood and pellet fires use a further 100 tonnes. The Solid Wood Processing Sector also uses wood as an energy source to run their operations. The two largest sawmills in this region burn 12,000 dry tonnes per year. Apart from the wood pellets, this wood is sourced from the Marlborough region through two major wood suppliers and a number of smaller players. This benefits regional economic activity and reduces the demand on the national energy grid.

Other economic activity could also be captured by the forest industry. For example, tree derived chemicals such as resin and tannins, nutraceuticals and pharmaceuticals, game hunting revenue, food (seeds, honey, and mushrooms) and paid recreational activities (tourism).

5.4 Non-wood Values of Forests

This analysis has focused on the economic value of growing and harvesting forests, exporting logs and processing logs into useful wood products. However, there are also ecological and social benefits that, depending on how the forest is managed, may outweigh the economic benefits of the wood.

From an ecological perspective, forests contribute to a range of areas including energy conservation, water and soil systems, climate, biodiversity, and conserving native forests.

Waste wood and firewood contribute to the energy requirements of the Marlborough region. The two largest sawmills in the region have boilers with a total capacity of 13 megawatts. These boilers are used at near capacity 24 hours a day throughout the year. Marlborough's domestic woodburners have a combined capacity of between 50 to 100 megawatts, and are used when needed to provide space and water heating. They provide around 15 million kilowatts of heat, mostly during the winter when there is pressure on the electricity system.

A 10-year study of 400 New Zealand households has highlighted the value of wood energy and showed that the warmest houses were those heated with solid fuel burners. It showed that woodburners supplied energy equivalent to the Benmore power station on an annual basis but, more importantly, provided this energy during the winter when it was most needed.

Forests can improve the infiltration capacity of compacted soils, reducing surface runoff. They can also improve water quality by shading streams and lake margins, and reducing nutrient and bacterial inputs as a replacement for agricultural crops or as stream buffers.

Trees also benefit soil not only by holding it together and maintaining a soil mantle on hillsides, but by increasing soil carbon and soil fertility levels.

While no substitute for native forests, native understory plants can flourish under exotic tree cover and provide habitat and food sources for native wildlife. Plantation forests, to a degree, contribute to the conservation of our native forests as almost 100 percent of wood production in New Zealand is from exotic plantations.

From a social perspective, forests can provide recreational opportunities such as hiking, biking, horse riding, hunting and fishing.

There is also the tourism aspect, where forests can contribute to the tourist experience. This is a secondary economic benefit.

However, capturing these ecological and social benefits depends on the appropriate management of forests to enable and encourage these other benefits to occur.

6 Supporting Infrastructure

The forest industry in the Marlborough region is currently well served by existing infrastructure such as ports, regional roads, and energy supply. While the infrastructure supports the forest industry, the forest industry contributes to the quality and viability of the infrastructure in the region.

Ports: Logs from the Marlborough region are exported from Shakespeare Bay and Port Nelson. Barges are also used to transport logs from the Marlborough Sounds to the ports at Picton or Havelock. Timber products are exported from Port Nelson.

Roads: Logs and timber products are transported within the Marlborough region and to other regions such as Nelson, Canterbury and the West Coast.

Energy: Solid wood processing is a large energy user in the region. There are currently no constraints on the energy supply.

Rail: Virtually no logs or timber products leave the Marlborough region by rail.

6.1 Shakespeare Bay

Shakespeare Bay is a deepwater export port located adjacent to Picton and operated by Port Marlborough. The 200 metre wharf has a depth alongside of 15.3 metres at low tide, making it the deepest export berth in New Zealand. Shakespeare Bay was opened in April 2000, primarily as an export port servicing the forest industry. Shakespeare Bay currently handles bulk cargo while container exports go through Port Nelson.

Shakespeare Bay's quayside storage area of 10 hectares is flat, open land adjacent to the berth. This storage area can be accessed by road, rail or cargo shipping, and it is fully lit. This allows log loading to occur 24 hours a day and is ideal for the forest industry. There is also a berth at the southern end of the wharf for loading and unloading barges.

In 2007, further sealing and drainage work was carried out on the log yard at Shakespeare Bay to facilitate log cargo marshalling activity. Pilotage services, which were previously contracted out, were also moved in-house.

Logs from the Marlborough Sounds can also be stored in Havelock. This Port has commenced construction of a log yard on reclamation land in Havelock, which is expected to meet the needs of Marlborough Sounds forestry in for the foreseeable future. This reclamation land is also being commercially developed, with the potential for further business and recreational use.

Table 6.1 illustrates shipping activity out of Shakespeare Bay in 2007. Logs accounted for the bulk of cargo exported in 2007. The volume of logs exported increased by almost 19 percent between 2006 and 2007.

Table 6.1. Port Marlborough Log Ships and Non-Ferry Cargoes, 2007

	2005	2006	2007	2006	2007
Port Marlborough				<i>% change</i>	
log ships	21	24	29	14.3%	20.8%
non ferry cargoes					
logs (JAS 000s)	381,376	350,762	416,219	-8.0%	18.7%
cement (tonnes)	6,800	5,454	2,970	-19.8%	-45.5%
fish (tonnes)	13,694	11,423	11,283	-16.6%	-1.2%
salt			27,417		
other (tonnes)		1,988	24,812		1148.1%
Total Cargo Tonnes	401,870	369,627	482,701	-8.0%	30.6%

source: Port Marlborough Annual Report 2007

The number of log ships calling at Shakespeare Bay has grown since the Port opened and there is capacity for this number to increase further. With log volumes in the Marlborough region projected to increase, it is important that Shakespeare Bay has the capacity to attract and accommodate more log ships in the future.

Approximately \$31 million worth of logs were exported from Shakespeare Bay in 2007. Between 2006 and 2007, export log volumes increased 19%.

There is also the opportunity for Shakespeare Bay to operate beyond being a log export facility.

Recently there have been exports of other bulk goods from Shakespeare Bay such as cement and salt. Port Marlborough is also working with other industries on new project cargoes. Two infrastructure projects were accommodated in 2007 for Kupe Oil and Gas, and Westwind Electricity. These, and other project cargoes, will generate significant revenue for the Port and help to realise the full potential of Shakespeare Bay.

Total export volumes out of Shakespeare Bay increased by 30.6 percent in 2007 to 482,701 JAS 000's from 350,800 JAS 000's in 2006.

However, new export opportunities have seen logs as a proportion of the total volume of goods exported from Shakespeare Bay decline, from 95 percent of total volume in 2006 to 86 percent of total volume in 2007.

Container exports are another area of development Port Marlborough could consider. As log volumes from the Marlborough region grow, the volume of wood processed rather than exported as logs could increase, creating a demand for containerisation. The demand from

other industries in the region, such as horticulture and viticulture, for containerisation may also grow during this period.

However, log exports are still the major focus of Shakespeare Bay and the Marlborough forest industry provides the export volumes that make Shakespeare Bay viable. Therefore, it is important that project cargoes and other exports from Shakespeare Bay complement rather than compete with log export operations.

6.2 Regional Rooding

The Marlborough region has a state highway, local rooding, and forest rooding infrastructure. The Marlborough District Council and Transit New Zealand are responsible for state highways. This responsibility is undertaken by Marlborough Roads on their behalf. Marlborough Roads is also responsible for all other local roads.

The Marlborough District Council is a unitary authority and has regional and district council functions. As such, the Council has a regional land transport strategy and a rooding asset management plan that Marlborough Roads administers. The Council also produces an annual land transport programme.

“The region is a major contributor to New Zealand’s export earnings and it is vital that continued access to both the supplying agencies and export ports is continued.”⁹

The Marlborough District Council, through Marlborough Roads, is taking active steps to support the forest industry in their region. A long-term bridge replacement strategy and a seal widening programme are two such steps. Bridges are a vital link in the haulage of logs and timber in and around the Marlborough region, while seal widening is needed to address road capacity issues.

The Council has recognised that an increase in harvesting in the Marlborough region will increase the number of logging trucks on the road and impact on transport infrastructure.

To encourage heavy traffic to avoid using public roads, the Council has been active in pursuing Alternatives to Road funding from central government, and has been successful twice in obtaining funding for log barging operations in the Marlborough Sounds. This has helped reduce the impact of logging trucks on the Port Underwood road for example.

⁹ Marlborough District Council. ‘Land Transport Programme 2008-2009’. www.marlborough.govt.nz.

6.3 Energy

The burning of wood residues provides 50 to 55 percent of the New Zealand forest industry's energy requirements.¹⁰ Electricity provides approximately 25 percent and the balance comes from gas, coal and oil. As discussed in Appendix A, electricity generation is a key input industry for the Marlborough Solid Wood Processing sector.

Wood energy in the Marlborough region is dominated by the two largest sawmills, burning 12,000 dry tonnes of wood waste per year, followed by domestic wood burners using around 5,000 tonnes per year. A further 100 tonnes of wood pellets (sourced from outside the region) is also consumed annually. The sawmills have a total capacity of 13 megawatts, which are used almost 24 hours per day, right through the year. The region's domestic woodburners have a combined capacity of between 50 and 100 megawatts, which are used as needed, mainly during the winter. These provide around 15 million kilowatts of heat.

There are currently no constraints on the Marlborough Solid Wood Processing sector in terms of energy supply. However, the development of a new processing plant in the Marlborough region, or any significant expansion of existing plants, will need to consider the availability of electricity. A large solid wood processing plant could use about 20 megawatts of power, which is equivalent to the needs of 10,000 households.¹¹

Marlborough Lines, the electricity supply company in the Marlborough region, is aware of economic development occurring in the region. In their Asset Management Plan for 2007-2017, Marlborough Lines discusses that, if a new solid wood processing facility in the Kaituna area is built, a new substation will be required.¹² In the Rapaura area, Marlborough Lines has also purchased a section of land to use for a substation. This land purchase is in anticipation of an increase in energy demand from new wineries or the expansion of existing wineries. A similar land purchase would occur in the Kaituna area to support the energy demands of the Solid Wood Processing sector should it be needed in the future.

Marlborough Lines revises their development programme annually, as they acknowledge the difficulty of predicting where and when future system development and capacity enhancements will be required. However, one of the factors listed as impacting on future systems development and enhancement is the processing of wood in the Marlborough

¹⁰ Ministry of Agriculture and Forestry (MAF). 'Nelson/Marlborough Forest Industry and Wood Availability Forecasts'. 2006.

¹¹ Ministry of Agriculture and Forestry (MAF). 'Nelson/Marlborough Forest Industry and Wood Availability Forecasts'. 2006.

¹² Marlborough Lines Limited. 'Asset Management Plan 2007-2012'. www.marlboroughlines.co.nz.

region. One of the base assumptions used by Marlborough Lines in their long-term planning is that forest harvesting will continue to increase.

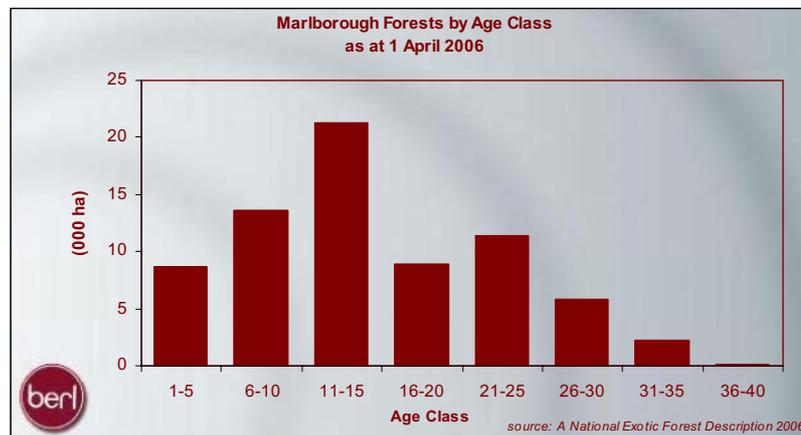
7 Future Growth of the Marlborough Forest Industry

As discussed in Section 3, the Marlborough forest industry is fairly young and has great potential to grow. This is true for the Forestry and Logging and the Solid Wood Processing sectors.

7.1 Age Class Mix

As illustrated in Figure 7.1, the most common age class of trees in the Marlborough region is between 11 and 15 years old; followed by 6 to 10 years old, and 21 to 25 years old.

Figure 7.1. Marlborough Forests by Age Class, 2006



This suggests if the trees are harvested at age 30, there will be significant increases in harvesting volumes from now until 2015, and an even more dramatic increase from 2020 to 2025.

According to the MAF wood availability forecasts, over the next 10 years the harvest in the Marlborough region has the potential to increase from just over 646,500 cubic metres in 2005 to between 900,000 and one million cubic metres by 2010.¹³ However, the size of this increase will largely depend on the harvesting decisions of small forest owners.

The harvest intentions of this group are driven by a range of factors including individual forest owners' objectives, forest age, log prices, demand from local solid wood processing plants, and perceptions about future log prices and wood availability.

¹³ MAF refer to the Marlborough region as the land area of Marlborough and Kaikoura Districts.

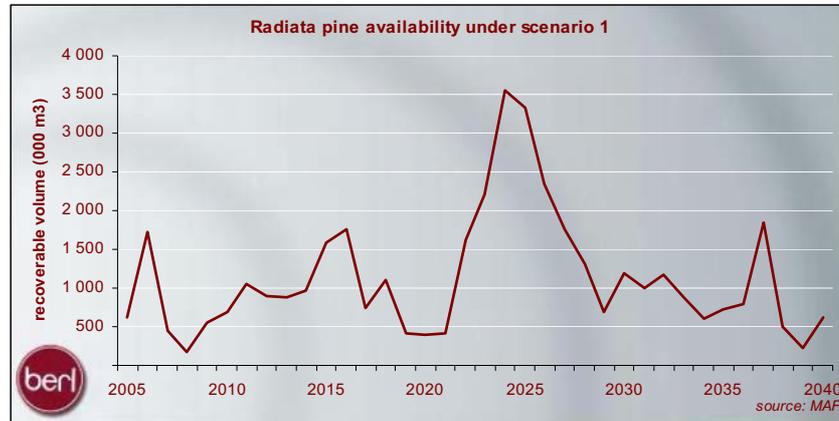
Even without the variability introduced by small forest owners decision-making, there are large variations in wood availability due to when the forests were planted.

7.2 Log Volume Scenarios

In 2006, the standing volume of wood in the region was around 13.9 million cubic metres. However, this is not all of marketable age at present. The following figures illustrate the potential availability of wood if harvesting is carried out according to differing scenarios.

Figure 7.2 indicates the availability of wood from Marlborough forests if all areas of radiata pine are harvested at age 30 without any constraints.

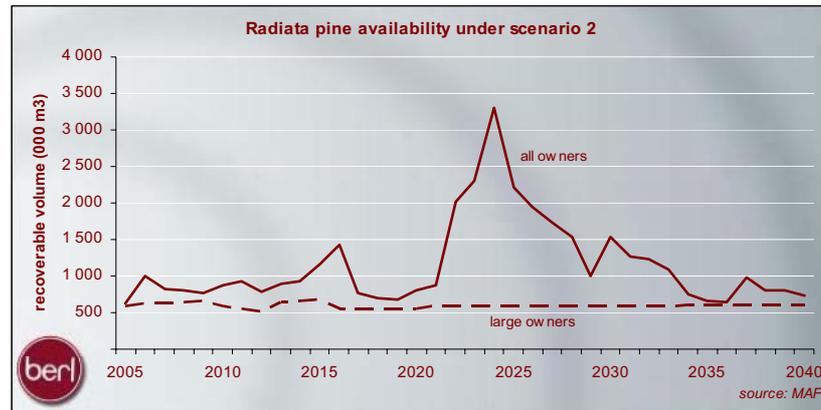
Figure 7.2. All Wood Harvested at Age 30



The harvest would fluctuate between 172,000 and 1.77 million cubic metres between 2007 and 2020. It would then peak at just over 3.56 million cubic metres in 2024, before falling rapidly to the one million cubic metre range from 2030.

Figure 7.3 illustrates the scenario where the large-scale forest owners harvest at their intended level and the small-scale owners harvest at age 30.

Figure 7.3. Large-Scale Owners Harvest at Intention



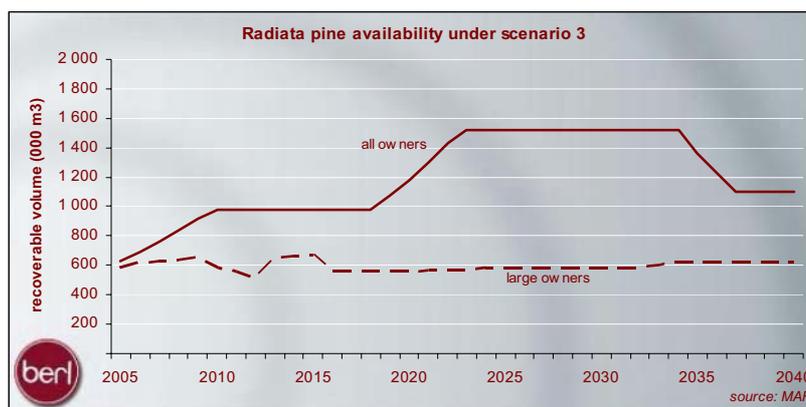
While this provides a harvest with less fluctuation, there is still a rapid increase and then decline in harvesting between 2020 and 2030.

These predicted fluctuations in harvesting make it potentially difficult for the industry to operate, both in the Forestry and Logging sector, but also in the Solid Wood Processing sector. Infrastructure and business investment require more certainty, and a consistent supply of resources. Businesses in the Forestry and Logging sector also need certainty around the demand for their services to allow them to invest in labour and capital.

If the aim was for a non-declining periodic yield with a target rotation of 30 years, then there is the potential for the total volume of wood harvested to increase to around 1 million cubic metres from 2010, and further increase to 1.3 million cubic metres from 2020.

Figure 7.4 shows a scenario for a split non-declining yield. The non-declining yield attempts to smooth the harvest volume fluctuations and ensure an increasing annual minimum harvest level. Large scale owner's wood availability is assumed to be at their stated harvest intentions. The total wood availability of radiata pine from the region is allowed to decrease in the scenario from 2034 (at the end of the current rotation).

Figure 7.4. Split Non-declining Yield¹⁴



The split non-declining yield scenario suggests that around one million cubic metres per annum will be available from around 2010. This increases to 1.5 million cubic metres per annum from 2023 and then reduces to around 1.1 million cubic metres from 2034.

A consistent harvest would provide the environment necessary for the industry and the region to justify investment in infrastructure and processing capacity.

As harvesting increases, we would also expect replanting and associated forest maintenance to increase as well. This would increase the size of the industry, and provide more opportunities in the Marlborough region.

7.3 Processing

The development of further solid wood processing could include a wood chipping facility and another sawmill. A wood chipping facility in Marlborough would provide an alternative market for forest owners who are looking to sell their residue, and decrease transport costs as forest owners currently transport chip logs to Nelson. If local processing were to increase, forest owners may become less reliant on export markets. Increasing solid wood processing capacity would also increase employment and GDP in the region, and improve returns to forest owners by giving them more options to maximise the returns on their wood.

Increasing value added

Flight Timbers has extended their business operations from sawmilling to project managing the building of resorts in the Maldives. This project management includes the supply of wooden components of the building, fittings and fixtures. Most of these products are sourced from the Marlborough region.

Rapaura Timber Limited is using sawmill residue combined with grape marc from the viticulture industry to make a quality garden mulch. This mulch is sold to local gardeners.

¹⁴ This is presented as scenario 4 in the MAF Nelson/Marlborough Forest Industry and Wood Availability Forecasts 2006.

However, markets for wood chips and the increasing volumes of sawn timber would have to be secured.

With improvements in scale and changes in technology, there are increasing opportunities to utilise forest residues and develop other uses for wood and wood by-products.

8 Opportunities and Challenges facing the Marlborough Forest Industry

In evaluating the contribution the forest industry makes to the Marlborough region several opportunities and challenges were raised by stakeholders. It is outside the brief of this report to explore these issues in-depth or to provide solutions. However, it is important to highlight these opportunities and challenges as areas worth further consideration as they may have strategic implications for the MFIA.

8.1 A Highly Visible Industry

Forestry and Logging and Solid Wood Processing are large visible sectors. Forestry is part of the landscape of the Marlborough region. People travelling between Nelson, Havelock, Picton and Blenheim see plantation forests, and plantation forests are also an integral part of the Marlborough Sounds.

Members of the Marlborough community use the forestry estate for recreation purposes including hunting, mountain biking, horse riding, and walking. In turn, members of MFIA are active in their community, supporting local events such as school fairs or charity sports tournaments, Marlborough Environment Awards, and facilities such as the Life Flight helicopter. This visibility and activity highlights the contribution the forest industry makes to the landscape and community in the Marlborough region.

However, the visibility of forestry and its proximity to roads and residences means the general public are often aware when harvesting is occurring or has occurred in an area. The harvesting of trees is a visible change to the landscape. Although the majority of the forests harvested in the Marlborough region are replanted, it can take two to three years for the visible signs of this replanting to occur. Harvesting in an area also means an increase in logging truck movements on the roads.

This is made even more difficult in the Marlborough region where the forest industry is compared to the visible and 'attractive' viticulture industry and its associated tourism benefits.

The high visibility of the forest industry can have either positive or negative outcomes. The strategy would be to promote the positive outcomes of forestry and minimise the negatives. The MFIA, and indeed the wider forest industry, is working to promote the positives of the forest industry. A good example of this is the national New Zealand Wood promotions.

8.2 The Environmental Benefits of Forestry

MFIA is aware of community concerns about the impact forestry has on the environment. They strongly support environmental awards in the Marlborough region and play an active role in this area. The Association are trustees of the Marlborough Environment Awards Trust, and members of the Marlborough Landscape Committee. Some members of MFIA have Forest Stewardship Council (FSC) certification.¹⁵ FSC certification may also become more important as greater numbers of customers request this type of information.

Recognition of the environmental benefits of forestry has resulted in a shift in public opinion and government support of the forest industry. Public recognition of the non-wood values of forestry, which include using forests for recreation, the gathering of traditional medicines and herbs, and in the prevention of erosion, is helping to shift opinion about the industry. Government funded projects, such as the East Coast Forestry Project and the Afforestation Grants Scheme have raised the profile of forestry and encouraged grant recipients to plant forests. The Emissions Trading Scheme (ETS) has also brought forestry to the forefront of public thinking as forestry is being promoted as a sustainable environmentally friendly industry.

Wood is currently a significant source of energy in the region, with the two major sawmills using around 12 megawatts and household wood burners having between 50 and 100 megawatts capacity. Wood burners, including pellet burners, have become a lot more efficient. Wood fuel is almost carbon neutral when considering the ETS. Wood has the potential to become a major source of energy in the region and nationally, providing economic as well as environmental benefits.

The New Zealand Wood campaign aims to increase wood consumption and create greater awareness of the environmental benefits of wood and forests. New Zealand Wood initiatives include promotion and advertising, research, website and information channels, a New Zealand Wood brand, design resources and training initiatives.

This campaign, together with the work MFIA does with the Marlborough Environment Awards Trust and Marlborough Landscape Committee, could further aid MFIA in their promotion of the forest industry in the Marlborough region. Greater community awareness could also be fostered through the promotion of investment in forestry, the sustainable nature of the industry, and the positive environmental impact forestry has in terms of preventing erosion and protecting water quality.

¹⁵ The Forest Stewardship Council (FSC) is an international non-profit organisation founded in 1993 to support environmentally appropriate, socially beneficial, and economically viable management of the world's forests.

8.2.1 *The Emissions Trading Scheme*

The New Zealand Emissions Trading Scheme (ETS) requires specific people and companies to surrender emission units (NZUs) to match the level of emissions for which they are responsible.

In terms of forestry, forests planted pre-1990 will be subject to emission liabilities if they are deforested for a change of land use. This will not apply if forest owners harvest and replant their forests or allow them to regenerate.

Of the 72,000 hectares of planted forests in Marlborough, approximately half (36,000 hectares) were planted before 1990 and under the draft legislation they will qualify for 39 emission units per hectare. Landowners with less than 50 hectares of pre-1990 forest on 1 September 2007 can apply to be exempt from the ETS.

Forest owners who established their forests post-1989 on eligible land, or establish new forests on eligible land, can choose to participate in ETS. The 36,000 hectares of forest planted in Marlborough after 1989 is currently storing approximately one million tonnes of carbon dioxide per year. This could significantly increase the economic output of forestry in Marlborough even if forest owners choose not to enter the ETS, as the carbon stored in these trees is still an output from Marlborough forestry for the benefit of New Zealand.

The ETS may impact on the harvesting intentions of small forest owners. Some small forest owners may extend their forest rotation to maximise the benefits of emission trading and wood production. This could make a significant difference to the cash flow of many smaller forest growers.¹⁶

The ETS may also increase the price of structural alternatives to wood such as concrete and steel, and energy such as coal and gas. Alternatives to coal and gas, such as using dry woodchip for fuel, could grow in importance, and there may be future opportunities to export woodchip and pellets out of Marlborough.

The ETS may also encourage more people to become a forest owner. Once forest growers are seen to benefit from the ETS, it is likely to have a positive impact on the image of forestry

¹⁶ Longer rotations can significantly increase the quantity of high-value pruned wood per hectare, and reduce harvesting costs per cubic metre by increasing piece size and volume per hectare. Longer rotations can also increase the value of unpruned and lightly thinned stands. Closer planting and longer rotations improve the stiffness of the wood, increasing its value for structural use and LVL. Longer rotations also decrease the proportion of the tree used as chip wood.

in Marlborough. It will show that people can tackle climate change by growing trees and get paid for providing this environmental benefit. The number of forest growers and owners in Marlborough could therefore increase once the benefits of the ETS are realised.

8.3 Ensuring Consistent Supply

The cyclic nature of the forest industry is a challenge for the Forestry and Logging and Solid Wood Processing sectors in the Marlborough region. Harvesting intentions impact on wood flows, and a steady supply of wood is needed to ensure labour and infrastructure is available.

In the Marlborough region, large forest owners have long-term harvesting intentions and keep harvesting at a stable level despite changes in log prices. This provides a steady flow of logs into solid wood processing plants in the Marlborough region and across Port Marlborough. With changing market conditions, forest owners and managers can quickly change the location of harvesting crews to harvest higher or lower quality logs, or choose to harvest only parts of a forest.

The future harvesting intentions of small forest owners in the Marlborough region is less clear. This creates a number of challenges for the sectors.

As small forest owners are largely price takers, they base their harvesting intentions on market conditions and log prices, while large forest owners will continue to harvest despite the markets to ensure consistent supply.

This is a perfectly rational approach for small forest owners as there is usually no requirement to sell at a certain time. However, because small forest owners tend to harvest when the price peaks there is often a spike in the demand for harvesting contractors, and the cost of harvesting increases.

As small owners account for a large proportion of the harvest, this makes planning for operation and investment extremely difficult for logging contractors, processors, services and infrastructure providers. For example, the equipment required for harvesting is a major capital investment. Logging contractors are unwilling to invest in machinery if the demand for harvesting fluctuates as they need to secure long-term work to pay for the equipment.

8.4 Solid Wood Processing Capacity

The log processing capacity of the Marlborough region is another challenge facing the sectors. Two areas of opportunity for the industry are the further processing of logs and the

development of a woodchip facility. For either of these options to be viable, a steady supply of wood is needed.

As mentioned in an earlier section, lower grade sawlogs are exported from the Marlborough region, while higher grade logs are processed within the region. While the volume of logs harvested has steadily increased, some forest owners such as Nelson Forests Limited have become less reliant on the export market by increasing the volume of logs they process. Nelson Forests Limited have also increased their production at the Kaituna sawmill by adding more shifts and increasing productivity. Others in the sector believe more sawlogs from the Marlborough region could be processed rather than exported. This would decrease dependency on export log prices and increase the value added price.

Increasing the capacity of existing plants or building a new solid wood processing plant in the region would make processing any increased volume of sawlogs possible.

Technology and automation can increase the capacity of existing solid wood processing facilities, but this may be constrained by regulations and costs. Land zoning and air and noise quality control may be an issue for expanding processing capacity in the region; but expansion of an existing site would be a cheaper option than building a new solid wood processing plant. Ideally, solid wood processing plants should be close to the source of the wood. In Marlborough, lifestyle blocks and grape growing are being developed in areas that would be considered prime for a new processing plant.

The development of a wood chip facility at Port Marlborough would create further competition in the region for residues. Currently, all the woodchip from the Marlborough region is transported to Nelson Pine Industries. However, to make the development of a wood chip facility a viable option, there needs to be a steady supply of wood chip to the Port, suitable storage facilities need to be established, and markets for the wood chip need to be secured.

8.5 Shakespeare Bay

The inconsistency of the harvest is a challenge for Port Marlborough's Shakespeare Bay wharf. Harvesting intentions impact on the flow of logs over the port, as a steady supply is needed to ensure labour and infrastructure is utilised. In the current climate of low prices and uncertainty caused by the ETS, harvesting is below earlier forecasts, which means the port must question infrastructure upgrades and other investment decisions.

Further development at the port, particularly residential property and marina development in the Shakespeare Bay area is a challenge that may face the forest industry in the Marlborough region. Property development around Shakespeare Bay could restrict industrial

activities at the Port. And noise, dust, hours of operation and lighting will become a greater issue. Marina development within Shakespeare Bay could also restrict the area available for ships within the bay, and associated shipping requirements such as the use of tugs.

Residential property development around the port appears to be a significant risk to economic development in the region. Shakespeare Bay is an important part of the infrastructure required by the forest industry that must be maintained and enhanced if export volumes are to be increased.

An example of the importance of Shakespeare Bay to the forest industry is the issue around the use of methyl bromide to treat logs for export at Shakespeare Bay. This issue has seen the region lose out on significant economic activity and placed at risk the ability of Shakespeare Bay to act as a logging port. Issues such as this have the potential to undermine other industrial activity at Shakespeare Bay.

Decisions that limit the potential use of Shakespeare Bay as an export port will not only affect the forest industry, but all export industries in the region. Ports play a key role in the facilitation of export industries. For example, a report by BERL found that Port Nelson played a key role in the transport mix of the Nelson-Tasman region's main export industries - forestry, seafood and horticulture.¹⁷ Around 90 percent of all port exports by value were related to these three industries. Further, the report stated that:

"It [Port Nelson] provides crucial export services to industries that are vital (the 'core drivers') to growth in the region, that are sustainable, and that are based on competitive advantage. The Port is also responsible for the transportation of many of the goods needed by a growing regional economy, with fuel and general cargo throughput increasing."

The importance of shipping as a mode of transportation for goods around New Zealand has also been signalled by the Government in their coastal shipping strategy. The goal of this strategy is to see at least 30 percent of all inter-regional freight carried by coastal shipping by the year 2040. Freight in New Zealand is expected to double over the next 10 years, and there is a commitment by government for New Zealand to be a carbon neutral country. Hence, ports are likely to once again become key infrastructure in the country's transport network.

It is very difficult, in the New Zealand regulatory environment, to build a new port from scratch, or expand port activities in or near residential areas. While there are examples of ports operating in built-up areas, the costs of doing so are high and the compromises that need to be made reduce the efficiency and capacity of port activities.

¹⁷ BERL (2004). The Impact of Port Nelson on the Nelson Region Economy. A Report to the Port of Nelson.

Shakespeare Bay is currently well situated for future expansion and development as an export port for the Marlborough region, both in terms of accessibility and growth possibilities. Coastal shipping, growth in forestry, expansion beyond bulk cargoes, other export industries in Marlborough and flow-over due to constraints in Port Nelson, are some of the future opportunities. This may not only encourage greater use of the port facilities, but could also attract new export industries to the region, expanding employment, output and GDP.

There are suggestions that better short-term returns can be made by developing surplus land as lifestyle or residential blocks. We consider this to be detrimental to long-term regional development, limiting the potential for economic growth in Marlborough.

8.6 Labour Supply

Employment in forestry can be grouped into forest planning and establishment; growing; and harvesting. Currently, very little new planting is occurring in the Marlborough region and, as a result, the demand for forest planning and establishment is low.

New planting and replanting impacts on the demand for silviculture workers, as they are involved in thinning and pruning trees to maintain the forest. Most plantation forests in the Marlborough region are being replanted after harvesting. The exception to this is in the Marlborough Sounds where high transport, labour and service costs due to the location of the forest being harvested may decrease the economic viability of forestry in this area.¹⁸ Forest replanting will create a demand for silviculture workers in the future as harvesting increases.

Forest harvesting involves a variety of occupations such as tree fellers, machine operators and, depending on the terrain,¹⁹ cable harvesting workers.

¹⁸ The Marlborough Sounds forests are made up of two areas. Areas that can be accessed by road and log trucks can cart logs from, and areas that may be accessed by road but have to have logs barged from them. Log barging on its own is not that expensive; it is the extra handling at either end which increases the costs. Better silviculture treatment is one way to increase the returns from Marlborough Sounds forests, as there have been a number of cases where pruned log quality is considerably better from these forests compared to similar forests in the Rai valley/Havelock area. Also, logs from Marlborough Sounds forests have better strength and stiffness compared to forest blocks in other parts of Marlborough.

¹⁹ The topography of the Marlborough region is not always suitable for mechanical processing. The use of mechanisation can decrease the demand for labour and more logs can be mechanically processed on-site, which is more productive.

There is a general labour shortage in the Marlborough region. Many forest owners and managers have difficulties employing harvesting contractors due to fluctuations in demand for services. As a result, many forest owners and managers in the Marlborough region use the same harvesting contractor to give the crews continuity, and competition for staff between harvesting crews is high.

When the demand for forest harvesting reduces, smaller harvesting crews enter alternative employment such as portable sawmilling, clearing trees for developing vineyard areas, planting trees, farm/rural work, or vineyard pruning. Individuals in these crews may also work for another harvesting crew on short-term contracts. Most people complete this alternative work short-term and when harvesting work is available in forestry and logging they re-enter the sector.

The tight labour market in the Marlborough region combined with working conditions in the forest industry also impacts on labour supply. The forest industry is competing with other sectors such as viticulture and aquaculture for workers. Skilled labour is in demand, particularly experienced machine operators who have qualifications and training. Regulatory skills, such as health and safety, and trade skills are considered important by the industry, while communication and team work skills are essential.

The Forestry and Logging sector offers competitive wage rates but the travel time combined with the long hours and hard work can be a deterrent to attracting labour. Some harvesting areas, such as in the Marlborough Sounds, may be isolated and crews may have to stay in rental accommodation during the working week. This may further deter people from working in the sector.

However, the industry does provide employee benefits such as competitive wages, opportunities to be self-employed, flexible working hours such as early starting times in the summer, the ability to work outdoors, and have access to prime hunting and fishing opportunities.

8.7 Transport Costs

Reliance on the port and road transport makes any increase in cost or inefficiencies an obstacle to the forest industry in the Marlborough region.

The Forestry and Logging and Solid Wood Processing sectors rely on road transport. This is a constraint on the sectors as road transport costs are increasing due to increased labour costs, diesel prices, and road user charges. Any increase in costs or inefficiencies impacts

on the Forestry and Logging and Solid Wood Processing sectors despite competition among transport operators in the Marlborough and Nelson regions being high.

High shipping rates and ship availability are also issues facing the Marlborough forest industry. Some forest owning companies are able to contract a shipping company up to five years ahead for log exports, while others use the spot market and contract a ship about six weeks prior to loading.

8.8 Working with the Nelson Region

The Marlborough and Nelson forestry regions are parallel. Each region exists independent of the other; each has its own forest resource infrastructure such as ports and roading, and its own processing facilities. But each region supplies the other with logs, wood or labour, and goods and services move between the regions.

For large forest owners who own forests in Nelson and Marlborough, harvesting has occurred in both regions over the last five years. However, the focus of harvesting has now shifted to Marlborough as the amount of wood available for harvesting in Nelson has stabilised. Harvesting only started in earnest in Marlborough over the last 10 years, so experienced crews are often employed from the Nelson region. However, it is harder to get crews from the Nelson region to commit to work in Marlborough due to travelling times.

As stated earlier in this report, 55 percent of the Marlborough harvest is exported directly through Shakespeare Bay. The majority of logs or wood products that are transported from Marlborough by land and sold to other New Zealand regions go via the Nelson region.

This integration across the two industries has benefited both regions. It has made them both more competitive, and has provided better access to resources, infrastructure, processing capacity and markets, which either region would not have been able to achieve on its own.

As the industry grows, it is important to consider and incorporate the capabilities of both regions when developing a growth strategy.

8.9 Working with Other Industries

The forest industry benefits the community in the Marlborough region and the wider area of the top of the South Island.

Many businesses in the Marlborough forest industry reported skill shortages and problems finding labour as constraints on their businesses. Some employers met this problem by

upgrading their equipment and increasing productivity with the same number of staff, while others offered competitive wages and working conditions.

There is some competition for labour between the horticulture and forestry industries, particularly from the vineyards. However, the work is different and people tend to move between the industries until they find a position they like.

In terms of outputs, the horticulture industry is often a customer of the forest industry and services are often shared. Forest products such as roundwood posts are used by the viticulture sector. Wood is also used to build sheds and houses on vineyards, and sawdust and bark is used as mulch. Services used by the viticulture sector such as helicopters for frost control are also used by the forest industry.

The water transport industry operating out of the Port of Marlborough benefits from the export of logs from Shakespeare Bay. The large number of logging ships operating out of Shakespeare Bay allows the port to operate marine services such as tugs and pilotage services. The port currently contracts its tugs but, if the number of log ships calling at the Port of Marlborough was to increase, a business case could result in the port buying tugs.

The forest industry in the Marlborough region is also involved in domestic tourism. By opening forestry area up for recreational use, forest owners and managers encourage people to use plantation forests and observe their benefits. As mentioned in an earlier section, forested land in the Marlborough region is used for hunting, mountain biking, horse riding, and walking. The public is often required to have a permit to use the land but public access is encouraged.

More people are moving to Blenheim and the Marlborough region as the regional economy grows, and people like the lifestyle associated with grape growing and wine making. This not only creates a positive place for people to live in but it creates a demand for timber products to build houses and accommodation. As the Marlborough region grows, the forest industry will need to grow with it to supply locally grown and sustainable timber products.

9 References

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10 Appendix A. Economic Impact of the Marlborough Forest Industry Sectors

The Marlborough forest industry can be broken down into the two sectors: Forestry and Logging; and Solid Wood Processing. An economic impact analysis at this level is useful for the MFIA to target specific areas of their industry.

10.1 The Marlborough Forestry and Logging Sector

As mentioned in Section 3, the Marlborough Forestry and Logging sector consists of three sub-sectors at the more detailed 114 industry level.²⁰ The three sub-sectors are Forestry, Logging, and Services to Forestry.

Table 10.1 shows measures for employment, businesses and contribution to GDP for the Forestry and Logging sector in the Marlborough region. It compares this to regional measures, and as a percent of the national Forestry and Logging sector.

Table 10.1. Marlborough Forestry and Logging Sector, 2007

Marlborough forestry and logging	Total	% of regional	% of national forestry and logging
Employment (FTEs)	185	0.88	2.83
GDP (\$mn)	54	2.82	2.83
Business units	320	4.66	5.53

source: BERL regional database, Statistics NZ

In 2007, the Marlborough Forestry and Logging sector employed 185 FTEs in 320 businesses. The sector also contributed \$54 million to the Marlborough region's GDP. Forestry and Logging accounted for 0.88 percent of employment in the Marlborough region, 4.66 percent of all business units, and 2.82 percent of GDP.

As a proportion of the national Forestry and Logging sector, the Marlborough region accounts for 2.83 percent of employment and GDP, and 5.53 percent of New Zealand businesses in the Forestry and Logging sector. The region has a disproportionately high number of forestry and logging businesses compared to national figures, which confirms the large number of small forest owners in the region.

Table 10.2 presents the economic impact of the Forestry and Logging sector on the Marlborough economy.

Table 10.2. Economic Impact of the Marlborough Forestry and Logging Sector, 2007

Marlborough forestry and logging	Direct	Total
Output (\$mn)	133	217
GDP (\$mn)	54	97
Employment (FTEs)	185	565

source: BERL regional database, Statistics NZ

In 2007, the Forestry and Logging sector in the Marlborough region contributed \$54 million to the region's GDP from an output of \$133 million. Taking into account indirect and induced effects, the total economic impact of the sector on the region included the employment of 565 FTEs, a contribution of \$97 million to regional GDP, and \$217 million in outputs. What these outputs consisted of can be seen below in Table 10.3.

The sizeable difference between the direct and total employment figures is indicative of the large employment multiplier in the Forestry and Logging sector. This means for every FTE employed in the Forestry and Logging sector in 2007, an additional 2.50 FTEs were employed in industries that supplied the sector or benefited from spending by FTEs in the Forestry and Logging sector.

Table 10.3 shows where inputs into the Forestry and Logging sector came from and where outputs from the sector went to.

Table 10.3. Total Inputs and Outputs of the Marlborough Forestry and Logging Sector, 2007

Marlborough Forestry and Logging	% of sector	% of regional
Inputs		
Intermediate inputs	37.48	1.50
Imports	24.21	1.84
Wages and other household income	9.81	1.58
Other inputs	28.50	1.43
Outputs		
Intermediate outputs	32.55	1.30
Exports	63.15	4.10
Household and government consumption	0.72	0.11
Other outputs	3.58	1.38

source: BERL regional database, Statistics NZ

Looking first at inputs into the Forestry and Logging sector, 37.5 percent of goods and services used in the Forestry and Logging sector came from industries in the Marlborough region. This is the equivalent of 1.5 percent of all locally-produced inputs used in production in the region.

²⁰ The 114 industries are based on the Australia and New Zealand Standard Industrial Classification (ANZSIC) codes, which classify the various industries in the economy.

In 2007, the Marlborough Forestry and Logging sector sourced over 37 percent of its inputs from the Marlborough region.

Other inputs, made up mostly of profits and taxes, provided 28.5 percent of inputs, while imports from outside of the region supplied 24.2 percent of the inputs into the Forestry and Logging sector. These imports represented 1.84 percent of all imports into Marlborough.

Almost two-thirds of the Marlborough Forestry and Logging sector's production was exported in 2007. This equates to 4.10 percent of all exports out of the Marlborough region.

A further third (32.55 percent) of production fed into other industries as intermediate outputs, while 4.3 percent (0.72 percent + 3.58 percent) was consumed or was in the form of other outputs, such as capital formation.

A number of industries provided intermediate inputs that were used in forestry and logging production. Table 10.4 presents the top 10 industries contributing inputs to the Forestry and Logging sector in 2007.

Table 10.4. Key Input Industries into the Marlborough Forestry and Logging Sector, 2007

	Marlborough Forestry and Logging	% of sector inputs
1	Forestry	4.73
2	Retail trade	2.60
3	Logging	2.07
4	Wholesale trade	1.79
5	Services to agriculture, hunting and trapping	1.70
6	Business administrative and management services	1.30
7	Services to forestry	1.17
8	Structural, sheet and fabricated metal product manufacturing	1.07
9	Road freight transport	1.02
10	Finance	0.77

source: BERL regional database, Statistics NZ

Examining the input industries that are generally associated with the Forestry and Logging sector it can be seen that the forest industry provided 4.73 percent of all inputs into the Forestry and Logging sector, while logging provided 2.60 percent.

The services to agriculture, hunting and trapping industry includes people engaged in rural land clearing and forest pest control (except aerial or wild animal control). The input of this industry to the Forestry and Logging sector in 2007 was 1.70 percent.

In turn, the services to forestry industry includes people engaged in forest planting, forest nursery operations, reforestation, timber plantation maintenance, silviculture, and tree

pruning and thinning. This industry had an input of 1.17 percent into the Marlborough Forestry and Logging sector in 2007.

Structural, sheet and fabricated metal product manufacturing had an input of 1.07 percent into the Forestry and Logging sector in 2007. This industry provides forestry and logging with equipment for machinery and tools such as machine guards, knives or blades, or chains. With an input of 1.02 percent, the importance of the road freight transport industry to the Marlborough forest industry is also highlighted above.

The business administrative and management services industry includes people engaged in forestry management consulting services and environmental consulting services. As mentioned in an earlier section, there are a number of forest management companies in the Marlborough region and these companies had an input of 1.30 percent into the Marlborough Forestry and Logging sector in 2007.

This table also illustrates those industries that contributed to the Forestry and Logging sector, but are not traditionally associated with it such as the importance of wholesale and retail trade, and finance. Together wholesale and retail trade supplied 4.4 percent of all inputs used in the Forestry and Logging sector. And retail trade alone was the second largest industry used by the Forestry and Logging sector, indicating that the Marlborough Forestry and Logging sector purchases retail goods from the region and contributes to regional retail trade.

While Table 10.3 explains which industries the Forestry and Logging sector relied on to provide the inputs it needed for production in 2007, Table 10.5 highlights industries dependent on the Marlborough Forestry and Logging sector to absorb large portions of their production.

Table 10.5. Marlborough Industries Reliant on the Forestry and Logging Sector, 2007

Marlborough Forestry and Logging		% of contributor industry output
1	Logging	88.56
2	Services to forestry	83.80
3	Road freight transport	24.87
4	Services to agriculture, hunting and trapping	11.04
5	Business administrative and management services	9.82
6	Scientific research	8.70
7	Other Horticulture	6.31
8	Mixed Cropping	5.41
9	Petroleum and coal product manufacturing nec	5.29
10	Employment, security and investigative services	4.20

source: BERL regional database, Statistics NZ

In 2007, logging and services to forestry were heavily reliant on the Forestry and Logging sector. The Forestry and Logging sector used 88.6 percent of all logging production in the region, and 83.8 percent of all services to forestry production.

The Forestry and Logging sector accounted for one-quarter of all road freight transport used in the Marlborough region, with 24.9 percent of outputs from this industry going into forestry and logging.

As mentioned earlier, the services to agriculture, hunting and trapping industry made up 1.70 percent of the inputs into the Forestry and Logging sector. It also contributed 11.0 percent of its outputs to the Forestry and Logging sector. This indicates the importance of forestry and logging to this industry, and that any future growth in the Marlborough Forestry and Logging sector could have positive employment and business opportunities for the services to agriculture, hunting and trapping industry.

Business administrative and management services contributed 9.82 percent of its outputs to the Marlborough Forestry and Logging sector. Similar to the services to agriculture, hunting and trapping industry, the business administrative and management services industry was a key input and output industry to the Forestry and Logging sector, and would be positively affected by any increase in harvesting in the Marlborough region.

The scientific research industry includes agricultural, biological or physical sciences research that is not completed at a university. In 2007, 8.70 percent of scientific research completed in the Marlborough region was for the Forestry and Logging sector. It is interesting to note that no scientific research is completed in the Marlborough region for the Solid Wood Processing sector so breaking the Marlborough forest industry down into the two sectors is useful to identify the importance of particular industries to each sector.

Other horticulture, mixed cropping, petroleum and coal product manufacturing nec, and employment, security, and investigative services are all industries that contributed to the Marlborough Forestry and Logging sector in 2007 but not the Solid Wood Processing sector.

Other horticulture at 6.31 percent and mixed cropping at 5.41 percent reflect the importance of seedlings, growing seeds, pest control, and aerial agricultural services to the Marlborough Forestry and Logging sector.

Petroleum and coal product manufacturing nec was an important industry for the Forestry and Logging sector in 2007. This industry contributed to 5.29 percent of its output, and most of this would have been in the form of fuel such as diesel to operate trucks and machinery.

10.2 The Marlborough Solid Wood Processing Sector

As mentioned in Section 3, the Solid Wood Processing sector consists of five sub-sectors at the more detailed 114 industry level.²¹ However, in the Marlborough region the Solid Wood Processing sector predominantly consists of log sawmilling, and wooden structural component manufacturing.

Table 10.6 shows measures for employment, businesses and contribution to GDP for the Solid Wood Processing sector in the Marlborough region. It compares this to regional measures, and as a percent of the national Solid Wood Processing sector.

Table 10.6. Marlborough Solid Wood Processing Sector, 2007

Marlborough Solid Wood Processing Sector	Total	% of regional	% of national Solid Wood Processing Sector
Employment (FTEs)	270	1.28	1.06
GDP (\$m)	30	1.59	1.06
Business units	32	0.47	1.30

source: BERL regional database, Statistics NZ

In 2007, the Marlborough Solid Wood Processing sector employed 270 FTEs in 32 businesses. The sector also contributed \$30 million to the Marlborough region's GDP. Solid wood processing accounted for 1.28 percent of employment in the Marlborough region, 0.47 percent of all business units, and 1.59 percent of GDP.

As a proportion of the national Solid Wood Processing sector, the Marlborough region accounted for 1.06 percent of employment, 1.06 percent of GDP, and 1.30 percent of New Zealand businesses in the Solid Wood Processing sector.

Table 10.7 presents the economic impact of the Solid Wood Processing sector on the Marlborough economy.

Table 10.7. Economic Impact of the Marlborough Solid Wood Processing Sector, 2007

Marlborough Solid Wood Processing Sector	Direct	Total
Output (\$mn)	101	201
GDP (\$mn)	30	74
Employment (FTEs)	270	525

source: BERL regional database, Statistics NZ

In 2007, the Solid Wood Processing sector in the Marlborough region contributed \$30 million to the region's GDP from an output of \$101 million. Taking into account indirect and induced

²¹ The 114 industries are based on the Australia and New Zealand Standard Industrial Classification (ANZSIC) codes, which classify the various industries in the economy.

effects, the total economic impact of the sector on the region included the employment of 525 FTEs, a contribution of \$74 million to regional GDP, and \$201 million in output.

The employment multiplier in the Marlborough Solid Wood Processing sector was 1.95. This means that for every FTE employed in the Solid Wood Processing sector in 2007, an additional 0.95 FTEs were employed in industries that supplied the sector or benefited from spending by FTEs in the Solid Wood Processing sector.

The Marlborough Solid Wood Processing sector is characterised by a relatively high GDP multiplier of 2.48. This suggests that industries in the Marlborough region that rely on the Solid Wood Processing sector to absorb their outputs add a high proportion of value (GDP) relative to this output.

Table 10.8 shows where inputs into the Solid Wood Processing sector came from and where outputs from the sector went to.

Table 10.8. Total Inputs and Outputs of the Marlborough Solid Wood Processing Sector, 2007

Marlborough Solid Wood Processing	% of sector	% of regional
<u>Inputs</u>		
Intermediate inputs	52.82	0.95
Imports	17.65	0.61
Wages and other household income	22.79	1.66
Other inputs	6.73	0.79
<u>Outputs</u>		
Intermediate outputs	42.56	0.77
Exports	55.40	1.63
Household and government consumption	0.93	0.06
Other outputs	1.11	0.19

source: BERL regional database, Statistics NZ

Looking first at inputs into the Solid Wood Processing sector, 52.8 percent of goods and services used in the Solid Wood Processing sector came from other industries in the Marlborough region. This is the equivalent of 1.0 percent of all locally-produced inputs used in production in the region.

In 2007, the Marlborough Solid Wood Processing sector sourced 53 percent of its inputs from the Marlborough region and 43 percent of its outputs were exported outside of the region.

Labour input, represented by wages in the table, provided 22.8 percent of inputs, while imports from outside the region supplied 17.7 percent of inputs into the Solid Wood Processing sector. These imports represented 0.61 percent of all imports into Marlborough.

Profits and other inputs made up the rest of the inputs into solid wood processing production.

More than half of the production by the Solid Wood Processing sector in the Marlborough region is exported. This equates to 1.63 percent of all exports from Marlborough.

More than two-fifths of production feeds into other industries, while just 2.0 percent is consumed or is in the form of other outputs, such as capital formation.

A number of industries provided intermediate inputs which were used in solid wood processing production. Table 10.9 presents the top 10 industries by contribution to the Solid Wood Processing sector in 2007.

Table 10.9. Key Input Industries into the Marlborough Solid Wood Processing Sector, 2007

	Marlborough Solid Wood Processing	% of sector inputs
1	Forestry	34.53
2	Log sawmilling and timber dressing	7.27
3	Electricity generation	1.82
4	Road freight transport	1.48
5	Wholesale trade	1.18
6	Business administrative and management services	0.83
7	Other wood product manufacturing	0.42
8	Logging	0.37
9	Structural, sheet and fabricated metal product manuf:	0.37
10	Waste disposal, sewerage and drainage services	0.33

source: BERL regional database, Statistics NZ

Examining the input of industries that are generally associated with the Solid Wood Processing sector it can be seen that the forest industry provided the lion's share of the intermediate inputs used in the Solid Wood Processing sector in Marlborough, with two-thirds, or 34.5 percent of all inputs. Unsurprisingly, log sawmilling and timber dressing, and electricity generation provided the second- and third-largest portions of intermediate inputs into solid wood processing, with 7.27 percent and 1.82 percent respectively.

Road freight and wholesaling also supplied significant portions of all intermediate inputs used in production by the Solid Wood Processing sector, with 1.48 percent and 1.18 percent respectively.

Similar to the Forestry and Logging sector, business administrative and management services supplied intermediate inputs into the Solid Wood Processing sector. In 2007, this industry provided 0.83 percent of the intermediate inputs into solid wood processing.

The other wood product manufacturing industry includes plywood and veneer manufacturing, fabricated wood manufacturing, and wooden structural component manufacturing. In 2007,

it provided 0.42 percent of the intermediate inputs into the Marlborough Solid Wood Processing sector. In turn, logging provided 0.37 percent of the intermediate inputs into this sector. The structural, sheet and fabricated metal product manufacturing industry, as mentioned in an earlier section, manufactures equipment for machinery and tools such as machine guards, knives or blades. This industry had an input of 0.37 percent into the Solid Wood Processing sector in 2007.

Similar to electricity generation, the waste disposal, sewerage and drainage services industry provided input into the Solid Wood Processing sector. In 2007, waste disposal, sewerage and drainage services provided 0.33 percent of the intermediate inputs. This input highlights the importance of infrastructure such as electricity and waste disposal to the Marlborough Solid Wood Processing sector.

While Table 10.9 explains which industries the Solid Wood Processing sector relies on to provide the inputs it needs for production, Table 10.10 highlights industries which depend on solid wood processing to absorb large portions of their production.

Table 10.10. Marlborough Industries Reliant on the Solid Wood Processing Sector, 2007

	Marlborough Solid Wood Processing	% of contributor industry output
1	Forestry	17.70
2	Log sawmilling and timber dressing	10.99
3	Other industrial chemical manufacturing	4.56
4	Waste disposal, sewerage and drainage services	3.61
5	Logging	2.23
6	Business administrative and management services	2.16
7	Road freight transport	2.14
8	Other education	1.68
9	Paper & paper product manufacturing	1.57
10	Services to forestry	1.50

source: BERL regional database, Statistics NZ

In 2007, forestry and log sawmilling and timber dressing were reliant on the Marlborough Solid Wood Processing sector, which accounted for 17.7 percent and 11.0 percent of their output respectively. The sector also accounted for 2.23 percent of logging that occurred in the region and 1.50 percent of the services to forestry.

The importance of infrastructure is again highlighted in this table where 3.61 percent of the waste disposal, sewerage and drainage services provided in the Marlborough region in 2007 were used by the Solid Wood Processing sector. The other industrial chemical manufacturing industry includes the manufacturing of pesticides and formulated pest controls, which are used in the treatment and fumigation of timber. In 2007, 4.56 percent of other industrial chemicals manufactured were used by the Marlborough Solid Wood

Processing sector. The sector also used 1.57 percent of the outputs from the paper and paper product manufacturing industry to wrap its timber products for sale and distribution.

The business administrative and management services industry again appears in this table and, in 2007, 2.16 percent of the outputs from this industry were used by the Marlborough Solid Wood Processing sector.

The other education industry includes businesses involved in providing education or training that is not at a school or university. This industry has not appeared in any other tables for the Forestry and Logging sector or in tables that examine the forest industry as a whole. The other education industry is important to the Solid Wood Processing sector because it is providing on the job training to people employed at the mills. People employed in the Forestry and Logging sector also receive on the job training that may be assessed by assessors for unit standards or formal qualifications. However, the regular participation of people at the mills in training is illustrated by the 1.68 percent output of the other education industry being used by the Solid Wood Processing sector.

In 2007, the Solid Wood Processing sector used 17.7 percent of all forestry production in the Marlborough region. While this figure appears relatively low, a glance at the forest industry's output table shows that the sector exports 72 percent of its production. This suggests there is potential for the region to ramp up their processing to add more value to the logs before they are exported.

11 Appendix B – Settlement Hierarchy

Based on the analysis completed, the forest industry does not have a significant impact on the settlement hierarchy patterns in the Marlborough region. As noted in the body of this report the majority of the plantation forests are located on the northern and southern side of the Wairau River, around the Rai valley and Canvastown, and throughout the Marlborough Sounds.

Table 11.1 shows the population of the major towns and areas in the Marlborough region in 2006.²²

Table 11.1. Population of Major Towns and Areas in Marlborough, 2006

Area (2006)	Population
Greater Blenheim	29,610
Picton	5,283
Wairau	4,629
Marlborough Sounds Terrestrial	4,365
Ward	939
Havelock	618
Seddon	522
Marlborough Region	46,182

source: 2006 Census

Blenheim is the largest town in the Marlborough region and in 2006 it accounted for 63 percent of the region's population. Picton, at 5,283 people, was the second largest town in the region in 2006, while approximately 4,629 people lived in the area around Wairau.

A large proportion of forests fall within the Wairau and Marlborough Sounds Terrestrial area units. The closest service centres to these forests are the towns of Blenheim and Picton.

Table 11.2 shows employment in the major towns in the Marlborough region at the 2006 census.

²² Statistics New Zealand breaks regions down into regional council, territorial authority and area units. In examining the Marlborough region, we have examined the area units of the region. For simplicity these area units are referred to in the body of the report as areas.

Table 11.2. Employment in Major Towns and Areas in Marlborough, 2006

Workplace (2006)	Employment
Greater Blenheim	11,922
Wairau	2,349
Picton	1,560
Marlborough Sounds Terrestrial	1,332
Ward	546
Havelock	171
Seddon	120
Marlborough Region	19,104

source: 2006 Census

Around 62 percent of employment was in the greater Blenheim area, followed by around 12 percent of employment in Wairau. Around eight percent of employment in the region was in the Picton area.

Table 11.3 shows employment in the primary and manufacturing industries for the main settlement areas.

Table 11.3. Employment in the Primary and Manufacturing Industries by Area, 2006

Workplace (2006)	Agriculture, Forestry and Fishing	Manufacturing	Total Industry
Greater Blenheim	972	1,785	11,922
Wairau	1,206	393	2,349
Picton	42	168	1,560
Marlborough Sounds Terrestrial	483	171	1,332
Marlborough District Not Further Define	258	117	942
Ward	348	33	546
Havelock	6	21	171
Marlborough Region	3,315	2,688	18,834

source: 2006 Census

The Ward, Wairau and Marlborough Sounds Terrestrial areas had a high proportion of employment in the primary and manufacturing industries. For example, close to two-thirds of employment in the Ward area and just over 50 percent of Wairau employment was in the primary sector.

There is not much forestry employment in the Ward area, but there is a lot of land in forest in Wairau. Major processing is based in the Wairau area, where Nelson Forests Limited is located and in the greater Blenheim area where Flight Timbers is based. There is some forestry-based employment in Picton and the Marlborough Sounds area due to the location of the Port and forests.

Discussions with industry stakeholders indicate that most people employed in the Marlborough forest industry live in Blenheim, Picton or Renwick. As such, the forest industry predominantly employs people who live in the larger settlements and does not have as great an impact on the populations of the smaller settlements.

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