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Report Name: New Zealand Wood Products and Forestry Report

Prepared By: David Lee-Jones

Public Distribution Date: March 04, 2020

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Report Highlights: Forestry is a key sector in the New Zealand economy and contributes 11 percent of total exports. The New Zealand log harvest for the year ending September 2019 totaled 36.6 million cubic meters of round-wood, 2.8 percent higher than the previous year. Sixty-one percent of the log harvest is exported directly as raw logs. China is currently importing 80 percent of the raw logs shipped out of New Zealand.

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Country: New Zealand

Post: Wellington

Report Category: Agricultural Situation, Wood Products

Prepared By: David Lee-Jones

Approved By: Levin Flake

Report Highlights:

Forestry is a key sector in the New Zealand economy and contributes 11 percent of total exports. The New Zealand log harvest for the year ending September 2019 totaled 36.6 million cubic meters of round-wood, 2.8 percent higher than the previous year. Sixty-one percent of the log harvest is exported directly as raw logs. China is currently importing 80 percent of the raw logs shipped out of New Zealand.

Executive Summary

Forestry is a key sector in the New Zealand economy and contributes 11 percent of total exports. Forest covers nearly 10.1 million (m) hectares (ha) or 38 percent of the total 26.6m ha land mass of New Zealand. National or regional parks or private conservation areas comprise 5.7m ha of the total forest area. Total area of exotic plantation forest is 2.1m ha, although only approximately 83 percent of this area is harvestable. Also, more than 90 percent of the plantation forest is a monoculture of Radiata Pine (derived from the Monterey Pine). Nearly all of the wood harvested is from non-indigenous forests, with only 84,000 ha of indigenous forest permitted to be harvested.

Even though the New Zealand Government has initiated tree planting programs and carbon credit prices have increased, the net planted area of plantation forestry as of April 2019 was 1.697m ha, down 7,000 ha or 0.5 percent from April 2018. This dip in net planted area continues a trend that started in 2015 as strong prices for export logs meant harvesting outpaced replanting. However, there are now signs that this trend is going to reverse. Although data from the Ministry of Primary Industries (MPI) shows new planting (outside of replanting previously harvested sites) in MY2017 and MY2018 at each only between 7,000 and 9,000 ha, MPI's forecast for MY2019 is this will increase to 22,000 ha. The Government's goal is for approximately 50,000 ha of new planting each year with a focus on indigenous species. It seems likely that the annual increases in new forest area will start to rise significantly, although much of this growth is likely to be for non-indigenous species. This is because investors looking to take advantage of increased carbon prices will concentrate on planting Radiata Pine, since it grows and accumulates carbon at about double the rate of indigenous species over the first 30 years of growth.

During MY2019 36.56m cubic meters of roundwood was harvested. This was 2.8 percent above MY2018 but the rate of harvesting slowed at the end of the marketing year. This may be a sign that forest owners are responding to the recent log price reductions in China and reducing the rate of tree-felling. From MY2014 through MY2018, the log harvest volume grew at a compound rate of 3.9 percent per annum, fueled by continued Chinese demand for raw logs.

Total raw log exports for MY2019 were 22.3m cubic meters, five percent ahead of MY2018. The export volume is significantly ahead of MPI 2016 projections, which had forecast exports of 18m cubic meters by 2020. Since MY2015, raw log exports have increased by 40.5 percent in total over the four years or 6.4m cubic meters, driven by strong demand from China, and shipments to China accounted for all of this increase. Chinese importers purchase 80 percent of the total volume of logs exported from New Zealand.

Domestic production of lumber and wood products, including wood chips, is estimated at 6.0m cubic meters for MY2019, which was two percent less than MY2018.

Forest-based industry exports (i.e., log, wood, pulp and paper) in MY2019 totaled US\$4.35billion,

which is 5.3 percent higher than MY2018. In MY2019 exports of lumber and other wood products totaled 3.4m cubic meters, which is seven percent less than MY2018, demonstrating that an increasing percentage of forestry product exports are raw logs rather than value-added wood products.

**Note: the marketing year here (MY) is defined as the 12 months to the end September. CY stands for calendar year.*

New Zealand Forests

Forest covers nearly 10.1m ha or 38 percent of the total 26.6m ha land mass of New Zealand. National or regional parks or private conservation areas comprise 5.7m ha of the total forest area. Total area of the exotic plantation forest is 2.1m ha, although only approximately 83 percent of this area is harvestable. Also, more than 90 percent of the plantation forest is a monoculture of Radiata Pine (derived from the Monterey Pine). Nearly all of the wood harvested is from non-indigenous forests, with only 84,000 ha of indigenous forest permitted to be harvested. According to the most readily available data (April 2019), the estimated standing volume of timber in the plantation forest is 495m cubic meters, 2.5 percent above the previous year but below the peak in 2013 of 513m cubic meters. The average age of the plantation forest in April 2019 was marginally older at 17.91 years, up from 2018 at 17.61 years.

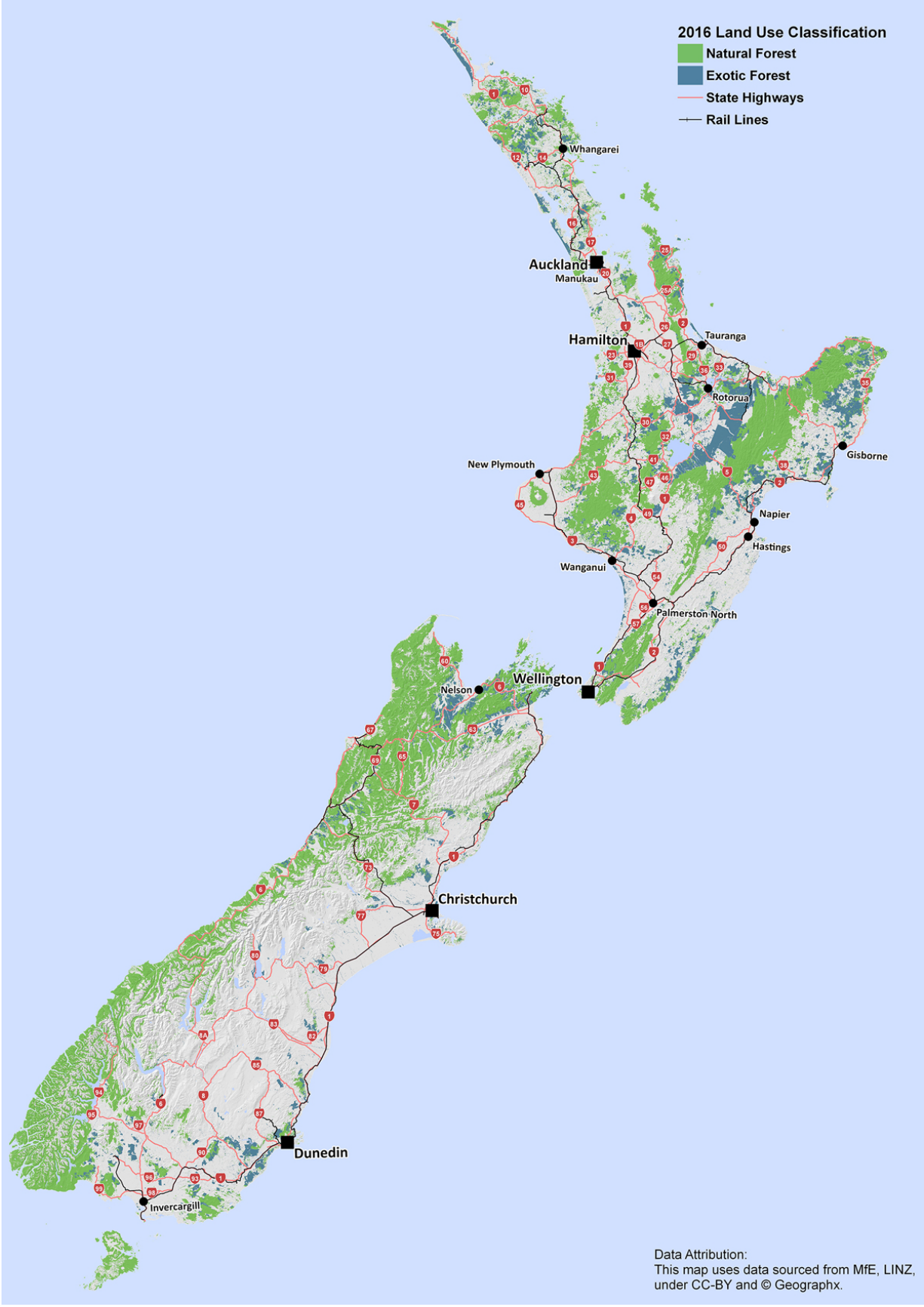
In 2019, there were around 1,600 owners with more than 40 hectares of forests. The vast majority (93 percent) of these owned between 40 and 999 hectares of forest, but this group made up only 13 percent of the of total exotic plantation forest estate area in New Zealand in 2019. In contrast, the other 7 percent of owners had 1,000 or more hectares and accounted for 70 percent of this area.

In addition to these medium and large-scale owners, there are likely to be over 10,000 owners with less than 40 hectares. 1.6 million hectares, or 95 percent of New Zealand's exotic plantation forests, were privately owned as at April 1, 2019.

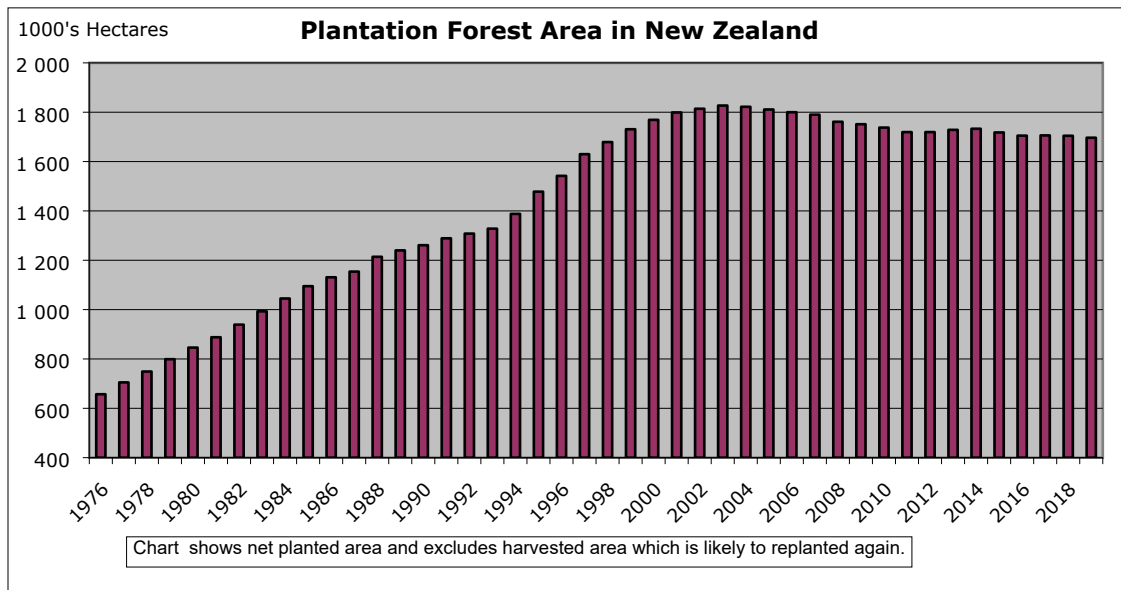
Wood Availability Forecasts

Regional and national wood availability forecasts are prepared by the industry and MPI under the National Exotic Forest Description (NEFD) work program. They apply a range of harvesting scenarios and other factors that show potential volumes of logs that may be harvested by large and small-scale forest owners over the next 30 years. These forecasts are available on the Te Uru Rākau website:

<https://www.teururakau.govt.nz/news-and-resources/open-data-and-forecasting/forestry/new-zealands-forests/>



Current Commercial Forest Area and Planting Intentions



Source: MPI

The net planted area of plantation forestry as of April 2019 was 1.697m ha, down 7,000 ha or 0.5 percent from April 2018. This dip in net planted area continues a trend that started in 2015 as the strong prices for export logs meant harvesting outpaced replanting. Under the current government's (led by Prime Minister Jacinda Ardern) new tree planting initiatives (detailed below), the net plantation forest is expected to increase. However, for MY2017 and MY2018 there was only between 7,000 to 9,000 ha of new planting (outside of replanting of previously harvested sites). The Ministry for Primary Industries (MPI) official estimate for 2019 is for this to increase to 22,000 ha of new planting. The rate of new plantings is expected to continue to climb in subsequent years and reverse the falling trend (reaching up to 40-50,000 ha per year) due to the following reasons:

- New Zealand's Emissions Trading Scheme is incentivizing investors and farmers to plant trees as carbon prices have risen to NZ\$28.5 per unit (US\$18.50) in early January 2020 compared to NZ\$1.00 per unit (US\$0.65) in October 2012 (1 unit equals 1 ton of Carbon as CO₂ sequestered in the trees). Industry participants say that once the carbon price is around NZ\$20 per unit it will stimulate planting. Being able to sell carbon credits as the tree grows for meaningful cash flow, rather than having to wait for harvest to receive all returns, has increased investment viability in forestry. There is speculation that carbon prices will increase from the current level by anywhere from twofold to tenfold. This is now driving investor interest, especially for those with a long-time horizon and a low cost of capital. There is even conjecture that some plantings may be solely for the carbon credits and then left unharvested.

- The Government of New Zealand (GONZ) has loosened the conditions for overseas investment for the purposes of forestry investment. The low cost of capital for many off-shore investors has meant they may be able to outbid most sheep and beef farmers on any hill-country land for sale.
- As environmental limits for nitrates, phosphates, and sediment discharges are tightened up around the country, farmers are taking the opportunity to plant more trees to provide environmental benefits (i.e. reduce phosphate run-off, reduce nitrate leaching, and reduce sediment run-off). This could help mitigate the need to reduce milk or meat production to abide by reduced limits.
- Deforestation of non-indigenous forest has ceased as dairy farming returns no longer make it attractive to change land-use to dairy farming.

Some factors, however, could continue to put a limit on forest expansion. These include:

- Log prices at the forest gate or at the wharf (in New Zealand dollars) recovered from a dip in MY2015 and trended upwards until March 2019 but have since fallen sharply. Although pruned, clear wood is in high demand both domestically and in export markets, foresters have been steering away from pruned, thinned silviculture regimes over the last decade as they have calculated the extra pruning costs have been greater than the extra returns. If the export log markets take a real tumble, unpruned forests may become uneconomic to harvest and if planted before 1990 will not be eligible for carbon credits.
- New Zealand domestic rules for the use of the fumigant, methyl bromide, are changing in October 2020. After this date, methyl bromide emissions in New Zealand will need to be recaptured or destroyed without being lost to the atmosphere. An alternative product could be used. To continue to comply with phytosanitary import regulations MPI is discussing various phytosanitary options with New Zealand's trading partners. Another chemical, ethanedinitrile (EDN) currently has an application before the Environmental Protection Authority (EPA) for use in New Zealand. Unless a satisfactory arrangement is agreed on this it could disrupt log exports.

The New Zealand Government - Billion Trees Initiative

The current center-left government, which assumed power in September 2017, announced early in its parliamentary term a goal to plant one billion trees by 2028. The one billion trees program encompasses a suite of policies, initiatives, and grants, which are meant to combat the effects of global warming/climate change. For instance, there are proposals to amend the Emissions Trading Scheme (ETS) legislation to make it more user-friendly and beneficial for forestry participants to claim carbon credits, and direct cash grants for planting trees. Approximately 50 percent of the trees to be planted (500 million) will replace harvested trees from existing plantation forests. This leaves an additional 50,000 hectares (ha) needed to be planted annually for ten years. If the 500,000 ha total is reached this

could likely mean the New Zealand sheep flock would be reduced by 10 to 15 percent as nearly all the land needed will come from the hill-country land currently occupied by sheep and cattle.

Log Harvesting

2019

During MY2019 36.56m cubic meters of roundwood was harvested. This was 2.8 percent above MY2018 but the rate of harvesting slowed at the end of the marketing year. This may be a sign that forest owners are responding to the recent log price reductions in China.

2018

The log harvest for MY2018 at 35.78m cubic meters of roundwood was 2.5 percent above MY2017. For the last five years the log harvest volume has been growing at a compound rate of 3.9 percent per annum. Chinese demand for raw logs has been driving this growth.

Estimated Roundwood Removals from New Zealand Forests (units: 000 cubic meters of roundwood)										
Natural Forest		Removals from Planted production Forests							Total Removals	Year Ended Removals
Quarter Ended	Total Removals	Saw Logs	Peeler Logs	Small Logs	Pulp Logs	Export Chips	Export Logs	Total Plantation Removals		
Sep-13	7	1944	288	322	885	63	4 380	7 882	7 889	29 492
Dec-13	5	1675	268	300	892	65	4 380	7 580	7 585	29 764
Mar-14	5	1610	276	301	836	48	4 190	7 260	7 265	30 257
Jun-14	5	1875	339	296	848	70	4 309	7 737	7 742	30 480
Sep-14	6	2009	349	318	896	37	3 716	7 324	7 330	29 922
Dec-14	5	1675	284	304	915	69	4369	7 615	7 620	29 956
Mar-15	5	1850	319	323	844	67	4155	7 557	7 564	29 660
Jun-15	6	1993	320	322	890	64	3598	7 187	7 191	29 481
Sep-15	4	1750	294	309	899	51	3879	7 181	7 187	29 561
Dec-15	5	1745	295	308	908	59	3902	7 218	7 223	29 164
Mar-16	5	1730	301	308	908	59	3902	7 209	7 214	28 814
Jun-16	6	2056	233	328	505	92	4364	7 577	7 583	29 206
Sep-16	7	2033	266	335	728	58	4809	8 229	8 236	30 256
Dec-16	6	1863	244	315	891	89	4353	7 755	7 760	30 989
Mar-17	3	2192	252	308	892	58	3943	7 644	7 647	31 399
Jun-17	4	2016	314	328	875	74	4938	8 546	8 549	32 191
Sep-17	5	2230	334	332	932	63	4896	8 787	8 792	32 749
Dec-17	6	1964	291	330	904	78	5439	9 007	9 013	34 001
Mar-18	5	1833	285	314	852	56	4744	8 083	8 088	34 442
Jun-18	2	2081	308	325	896	62	5254	8 926	8 928	34 821
Sep-18	6	2123	337	344	904	82	5735	9 525	9 530	35 559
Dec-18	2	1939	317	325	871	32	5651	9 136	9 138	35 684
Mar-19	4	1827	287	316	871	79	5424	8 805	8 808	36 404
Jun-19	8	2015	358	321	849	83	5761	9 387	9 395	36 872
Sep-19	2	2111	319	313	921	44	5504	9 212	9 214	36 555

Source: MPI

Harvest Volumes in the Longer Term

Previous forecasts by the Ministry for Primary Industries (MPI) were for annual harvest volumes to reach 32.4m cubic meters by 2020, but these forecasts have been surpassed. Some future scenarios now modelled by MPI based on surveyed harvesting intentions suggest that an annual harvest of 35m cubic meters of roundwood could be sustained for approximately 10 years. The average age of trees being harvested is not dropping, which would suggest that harvests in the 35-36m cubic meters per annum are sustainable for some time yet. Survey data from the landowners with less than 40 hectares, who are estimated to number over 10,000, is in general of lower quality than the data from larger forest owners. These smaller owners may be contributing more to the overall production than is currently estimated.

Wood Disposal 2012 to 2019 – Where Did All the Logs Go

New Zealand Wood Supply & Disposal Reconciliation								
In millions cubic meters								
Years Ending September 30	2012	2013	2014	2015	2016	2017	2018	2019
Wood Production from Log Harvest	26.46	29.49	29.47	29.04	30.46	32.75	35.56	36.56
Disposed of by:								
Logs Directly Exported	12.89	16.15	16.57	15.89	16.95	18.13	21.17	22.34
Wood Chips exported	0.36	0.35	0.22	0.26	0.25	0.28	0.28	0.24
Timber & Wood Production	5.59	5.49	5.26	5.31	5.52	6.02	5.85	5.77
Pulp & Paper Production	3.53	3.44	3.43	3.53	3.53	3.59	3.56	3.51
Residual (to energy use, minor uses, or waste)	4.09	4.05	3.98	4.05	4.2	4.73	4.7	4.7

Source: MPI, StatsNZ, TDM LLB, FAS/Wellington estimates

Note: The residual row includes offcuts from the processing sector which gets used for energy co-generation; smaller niche end-uses such as sawdust for animal bedding; and that which goes to waste.

Total New Zealand Wood Processing Classified to Broad Product Type				
Shown as the proportion of quantity produced in the year to September for each type is of total output of wood processed				
Product Category	Lumber Production	Veneer incl. for use in Plywood & LVL Production	Particle Board Produced	Fiber Board Produced
% of each type 2003	71.7%	10.4%	3.6%	14.4%
% of each type 2013	73.1%	11.0%	2.9%	12.9%
% of each type 2014	71.4%	12.8%	2.8%	13.0%
% of each type 2015	72.0%	11.6%	2.8%	13.5%
% of each type 2016	73.6%	9.9%	2.8%	13.7%
% of each type 2017	76.4%	8.4%	2.6%	12.7%
% of each type 2018	75.7%	8.1%	2.6%	13.5%
% of each type 2019	75.8%	8.6%	2.4%	13.2%

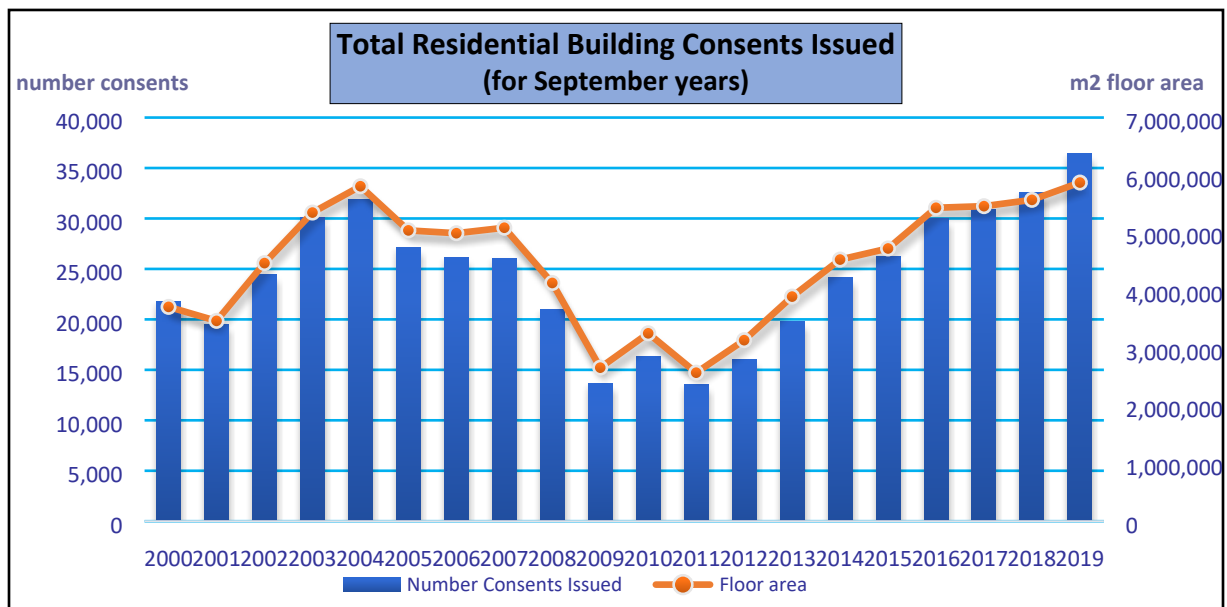
Source: MPI, StatsNZ

Exports versus Domestic Usage

The Domestic Scene

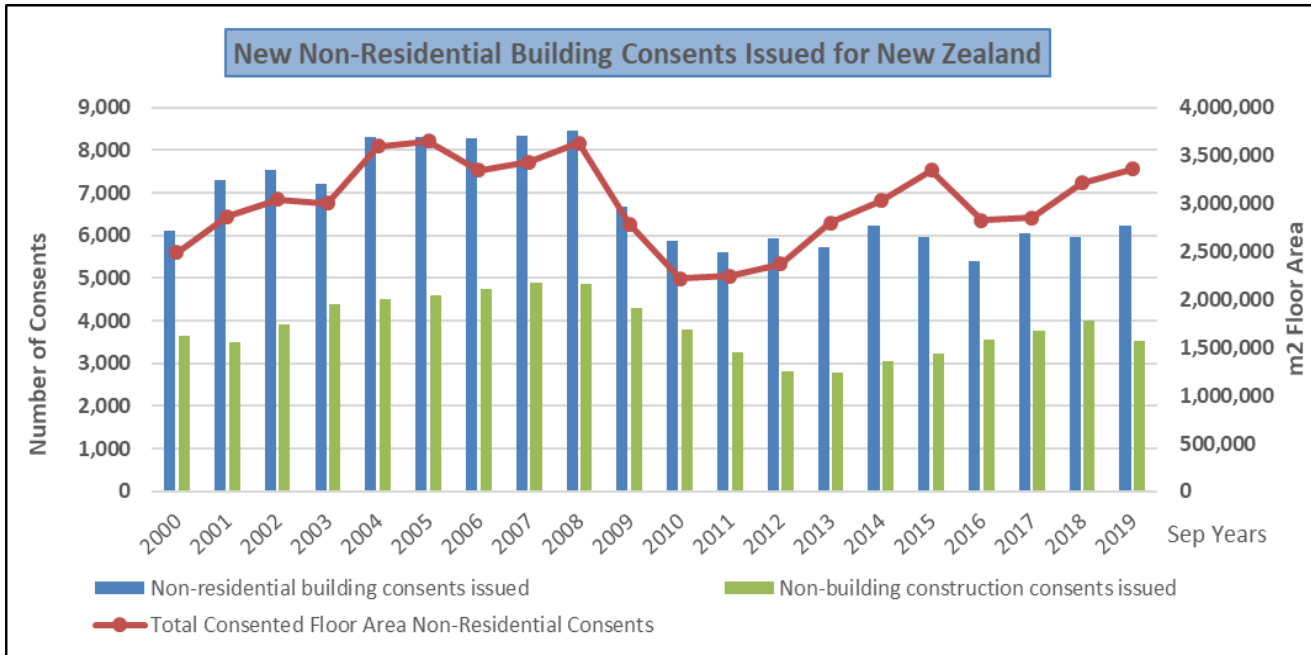
Domestic use accounts for 30 percent of the total wood harvest, and 43 percent of total lumber production. Issuance of residential building consents jumped to 36,446 in MY2019, 12 percent up on MY2018, and a 170 percent increase from the low point in 2011. Non-residential building consent numbers are up four percent at 6,226 for MY2019, and at 3.4m square meters consented is 51 percent greater than the low point in MY2010. With economic growth levelling off to around two percent per annum, it seems unlikely that non-residential building will get back to the highs recorded back in MY2005 and MY2008 of 3.6 million square meters.

The current government has not been able to follow through on its election promise to build 100,000 new houses and/or apartments over a ten-year period (starting from 2018) and has retreated from the target. Regulatory change at national and regional level is still needed to solve consenting time delays and compliance cost escalation. Prefabricated wood buildings could address issues related to the speed-of-build and cost escalation.



Sources: MPI, StatsNZ

Domestic wood processing output volume peaked in MY2017 at 6.3m cubic meters and has since trended down. In MY2019 total output was 6.0m cubic meters, two percent below MY2018. It seems that while there has been increased demand compared with the first half of the decade, in many cases alternative building materials have been used especially for commercial buildings. For the last decade domestic use of wood products peaked in MY2017 at 2.7m cubic meters but is estimated to be 5.4 percent lower in MY2019 at 2.6m cubic meters.



Sources: MPI, StatsNZ

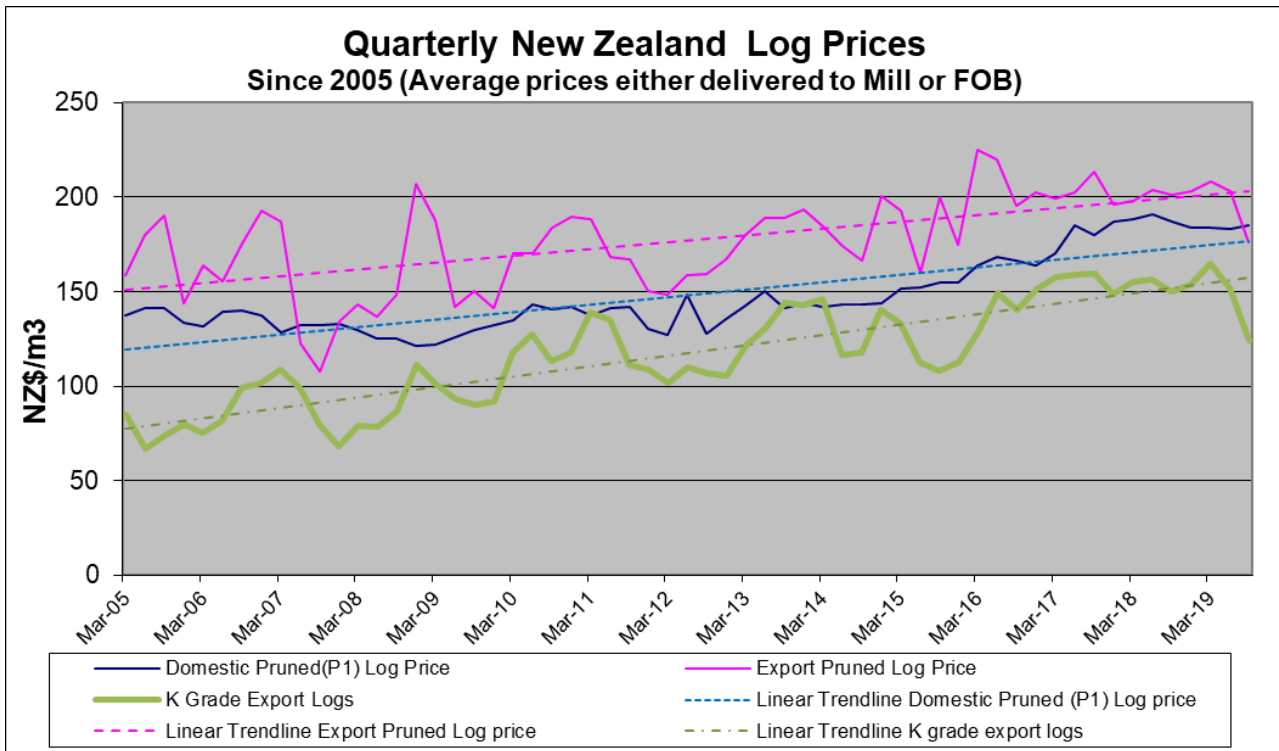


Source: TDM LLB, StatsNZ, MPI

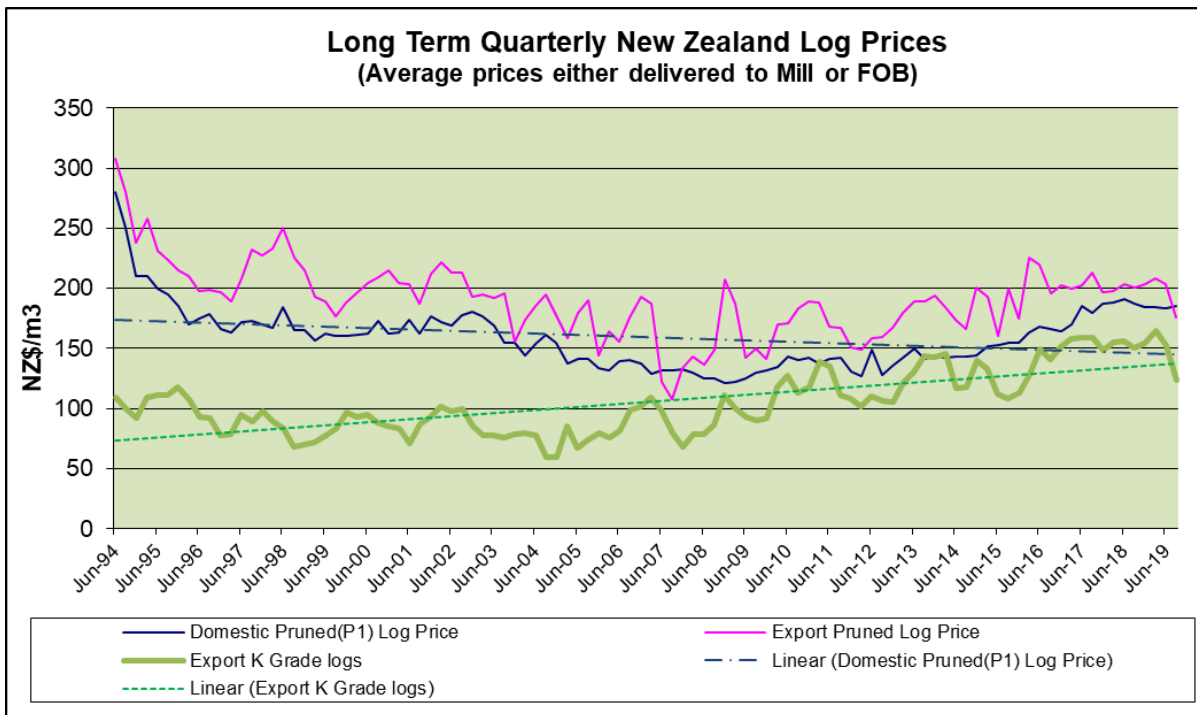
Log Prices

According to industry contacts, domestic wood processors have claimed that because of high Chinese demand for raw logs and capacity to pay higher prices, domestic log prices have been driven up to unsustainable levels. This, in turn, makes domestic wood processors financial margins very slim and is

harming re-investments in new technology and is limiting opportunities to take advantage of increased export and domestic demand for value-added products.



Source: MPI



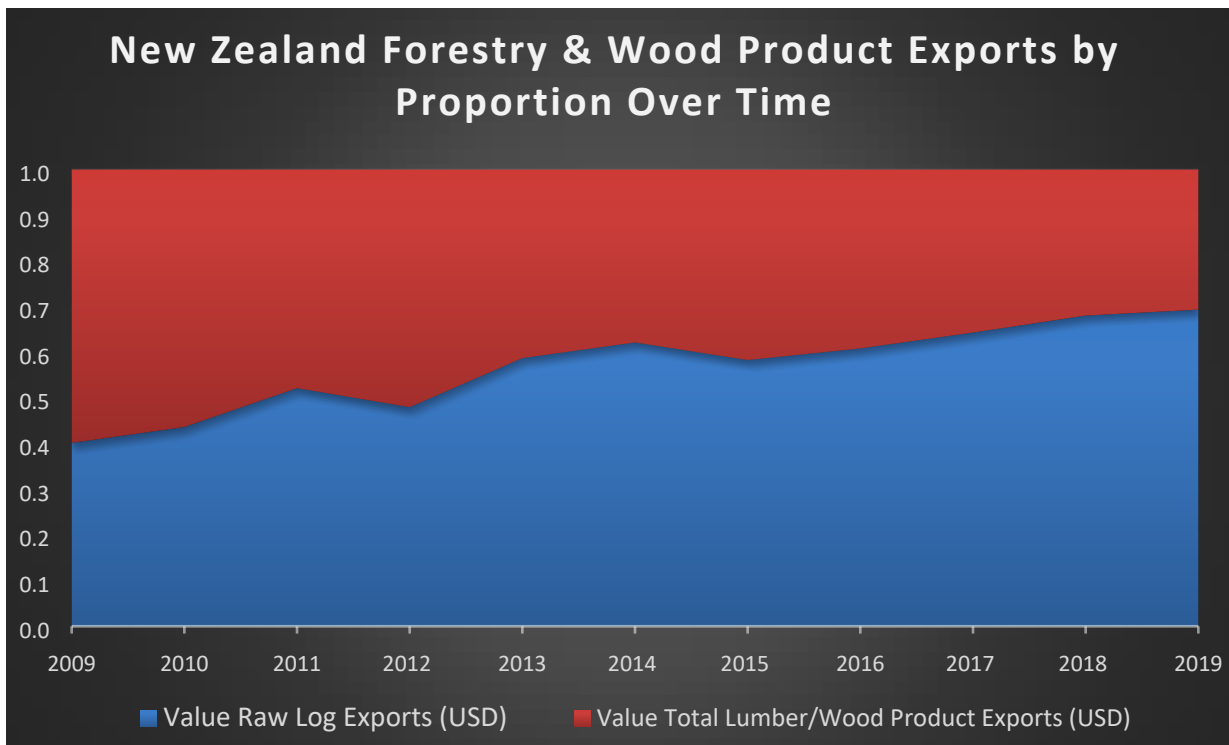
Sources: MPI, StatsNZ

Although export demand may have driven up domestic prices in the past, over the last six months as export prices have dropped sharply domestic pruned log prices have been relatively stable. This seems to indicate a weakening of the close correlation of domestic prices with export log prices.

New Zealand Exports and Trade

Total raw log exports for MY2019 are estimated at 22.3m cubic meters, which is five percent higher than the previous year. The chart below shows the rapid increase in raw log exports since 2015. The volume of exports is significantly ahead of the MPI MY2016 projections, which forecast log exports at 18m cubic meters by MY2020. Since MY2015 raw log exports have increased by 40.5 percent or 6.4m cubic meters. Larger exports to China account for all of this increase and China accounts for 80 percent of total raw log exports. With the log harvest volume now at what could be considered a sustainable ceiling and prices having dropped significantly over the last six months, it is likely future raw log exports will at best plateau and may decrease if the plantation forest is going to managed sustainably.

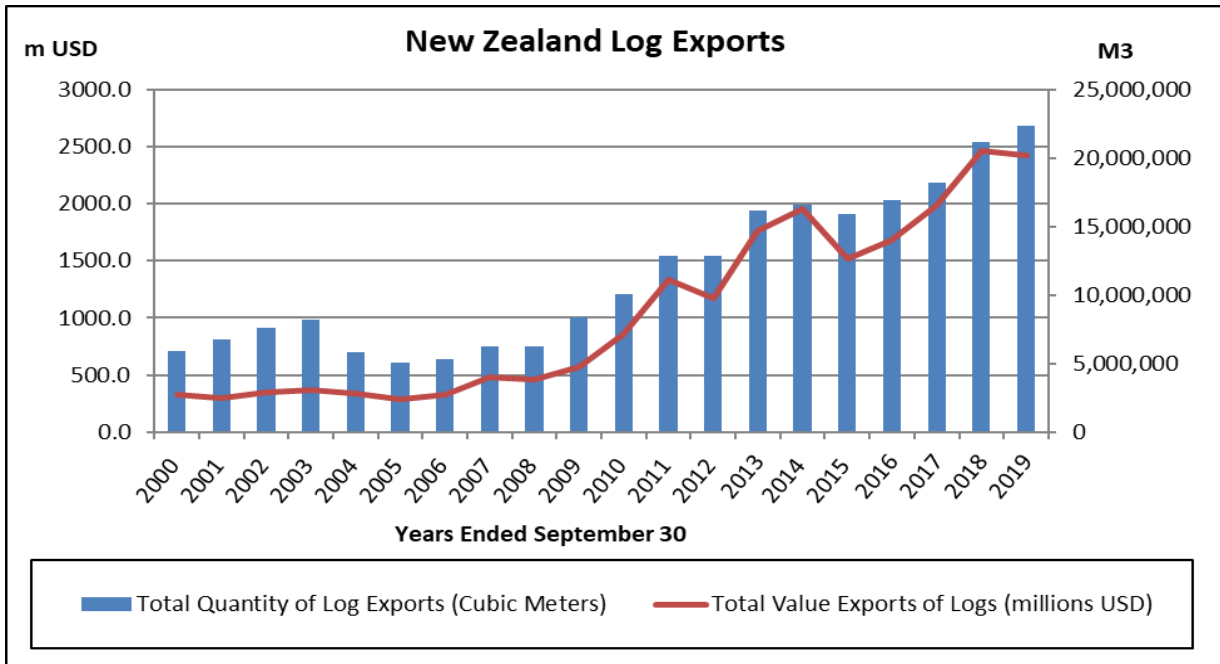
Total lumber and wood product exports from New Zealand for MY2019 were 3.4 m cubic meters, which was seven percent less than MY2018. Lumber and wood product exports had been relatively stable from MY2014 to MY2018 varying in a range between 3.6m to 3.8m cubic meters. However, an increasing percentage of forestry product exports are raw logs rather than value-added wood products.



Source: TDM LLB

At the individual lumber/wood product category level, sawn lumber over six millimeters thick makes up 54 percent of all lumber and wood product exports and the total volume exported in MY2019 stands at 1.84m cubic meters, which was down five percent on the previous year. Fiberboard exports in MY2018,

at 0.58 m cubic meters, were down four percent and comprised 17 percent of total lumber and wood product exports. However, this volume of fiberboard exports is well below the peak of 0.75m cubic meters shipped back in MY2006. Also grouped with the lumber and wood products is chipped wood destined for fuel wood or for further processing. This group comprises 17 percent of the total volume exported in the lumber and wood products group for MY2019.



Source: TDM LLB



Source: TDM LLB

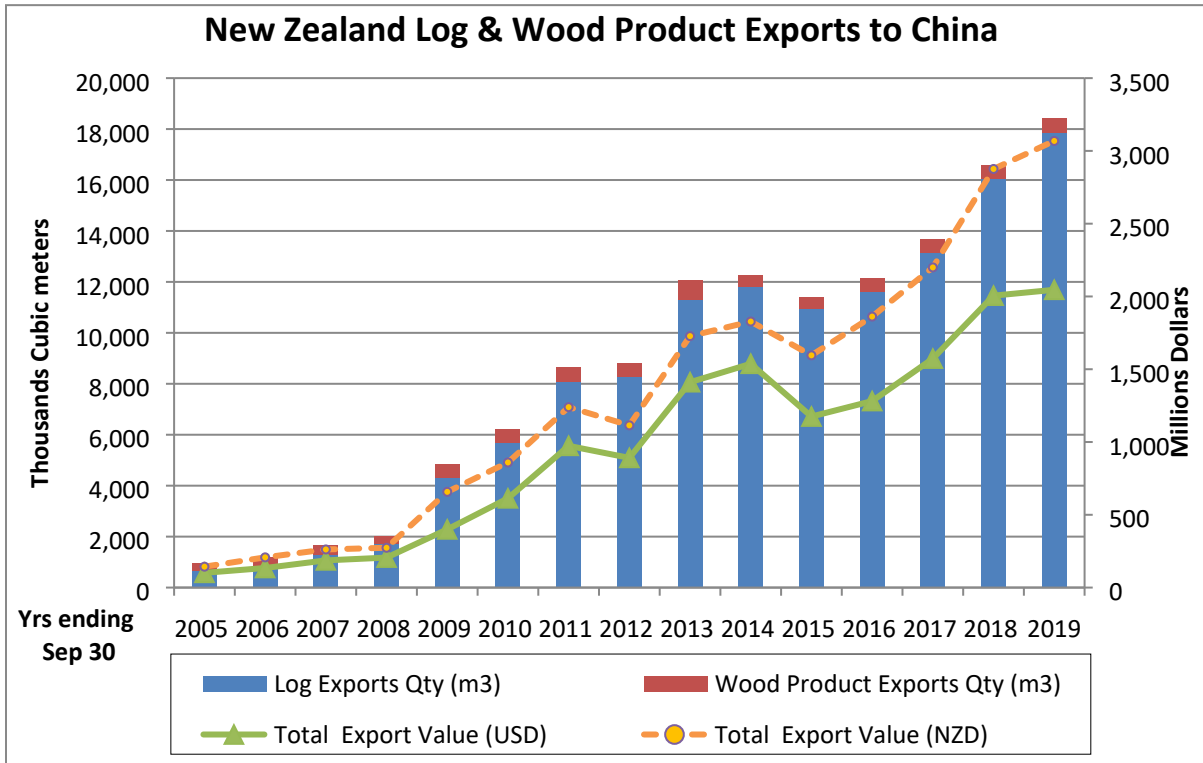
New Zealand Export Destinations for all Wood Products excluding Pulp/Paper by FOB Value								
Partner	Years Ending September 30 (Value: USD)					Year-to-Date		year-to-date % change
	2015	2016	2017	2018	2019	10/18-11/18	10/19-11/19	
China	1,174,885,280	1,283,372,372	1,573,082,698	2,005,639,678	2,045,718,775	394,985,998	296,813,064	-24.85
Japan	247,504,763	254,244,349	258,735,088	276,485,228	250,619,398	40,904,813	37,875,237	-7.41
South Korea	262,299,748	274,179,674	303,469,909	271,687,301	229,633,334	47,493,857	29,492,357	-37.90
Australia	279,515,731	263,174,871	245,960,157	252,995,816	208,624,104	42,566,094	32,538,868	-23.56
India	161,479,315	193,085,912	182,287,066	159,566,304	161,791,320	18,200,105	20,974,203	15.24
United States	146,442,838	159,182,925	173,807,308	169,617,150	160,082,959	28,800,993	28,007,844	-2.75
Vietnam	46,046,741	49,918,558	53,264,510	53,563,100	58,730,748	12,204,290	12,695,066	4.02
Hong Kong	3,717,894	13,566,539	6,803,794	53,964,531	55,695,226	7,586,154	2,540,280	-66.51
Taiwan	50,606,274	43,783,259	43,433,357	53,096,646	43,363,401	8,512,828	7,622,271	-10.46
Philippines	30,926,358	36,735,617	37,048,761	39,951,728	42,114,739	7,516,384	7,306,892	-2.79
Rest of the World	195,639,476	197,089,861	214,099,050	283,061,157	230,479,734	43,617,617	38,704,137	-11.26
Total for the World	2,599,064,418	2,768,333,937	3,091,991,698	3,619,628,639	3,486,853,738	652,389,133	514,570,219	-21.13

Source: TDM LLB

New Zealand Export Destinations for Wood Pulp & Paper by FOB Value						
United States Dollars						
Partner	Year Ending: September			Year to Date		%Δ 19/18
	2017	2018	2019	10/18-11/18	10/19-11/19	
China	214,945,547	231,830,003	230,659,045	42,611,258	39,043,208	-1
Australia	228,925,017	226,274,758	179,448,996	35,852,328	25,678,955	-21
Thailand	42,396,152	65,893,045	74,467,190	15,144,859	10,374,374	13
Indonesia	89,707,867	94,939,259	72,442,575	12,094,726	7,844,325	-24
South Korea	49,084,531	64,309,952	56,468,980	9,997,639	7,796,589	-12
India	39,162,587	46,961,837	41,975,326	5,052,751	9,629,822	-11
Malaysia	29,575,550	51,138,336	38,977,279	8,744,482	4,762,268	-24
Saudi Arabia	5,909,531	22,042,470	30,155,629	3,866,971	2,693,096	37
Japan	43,047,230	30,234,279	28,773,841	5,128,981	3,067,043	-5
Philippines	23,967,696	24,929,862	23,781,206	5,218,159	3,602,396	-5
Rest of the World	118,050,886	121,374,838	89,983,753	16,748,469	14,241,097	-26
Total for the World	884,772,594	979,928,639	867,133,820	160,460,623	128,733,173	-12

Source: TDM LLB

China



United States



Note: This analysis does not include wood chips which are relatively minor.

Useful Websites:

MPI: <http://www.mpi.govt.nz/>

NZ Forest Owners Assn: <http://www.nzfoa.org.nz/>

Wood Processors Association of New Zealand: <http://www.wpma.org.nz/>

Structural Timber Innovation Company (STIC): <http://www.stic.co.nz/home>

Cross Laminated Timber: <http://nzwood.co.nz/industry-news/2011/07/05/cross-laminated-timber-comes-to-nz/>

Attachments:

No Attachments.