

IS Kawerau – Forestry Background Study

1. Background

The Central North Island (CNI) is New Zealand’s principal forest growing and processing region, accounting for:

- ~30% of New Zealand’s forest area. As at April 2011, CNI forests accounted for 513,000 hectares of New Zealand’s 1.72 million hectare national estate [1].
- ~45% of the national harvest. In the year to March 2011, the CNI accounted for 11.14 million m³ of New Zealand’s 25.05 million m³ harvest [2].

Made up of 13 territorial authorities (local government districts), the CNI operates essentially as one wood supply region. The following eight districts account for ~98.5% of the CNI’s forests: [3]

- | | |
|---------------------------------|--|
| ▪ South Waikato District, 12.9% | ▪ Western Bay of Plenty District, 4.6% |
| ▪ Waitomo District, 5.0% | ▪ Rotorua District, 9.9% |
| ▪ Ruapehu District, 9.0% | ▪ Whakatane District, 20.5% |
| ▪ Taupo District, 33.3% | ▪ Opotiki District, 3.2% |

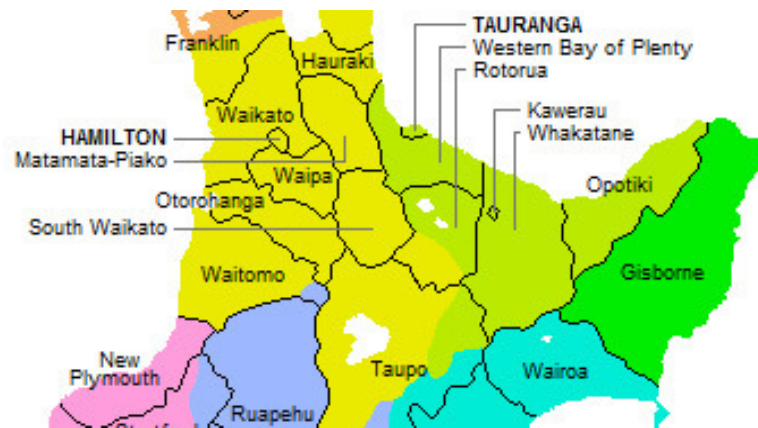


Figure 1: Map of regional territories relevant to the CNI forests

Whakatane, Rotorua, Taupo & South Waikato have the most forested area, representing in excess of 75% of total CNI resources. The majority of CNI forests are within a 100km radius of Kawerau, while the majority of stocked forests in the Whakatane and Rotorua districts, approximately 30% of the CNI, are within a 50km radius. Kawerau and Tokoroa (which processes much of the harvest from the South Waikato and neighbouring areas) are the CNI’s two major wood processing hubs.

2. Forests & owners

Large forest owners (1,000 hectares +) account for almost 90% of CNI forests, with the following four groups controlling in excess of 80% [4].

Hancock Timber Resources Group (HTRG), US based TIMO – 207,000 hectares (40%):

- Tiaki Plantation – 30,000 hectares (Whakatane & Rotorua)
- Prudential Timber assets – 51,000 hectares (Western BoP, Whakatane, Opotiki, Rotorua, Taupo)
- Taumata Plantations – 121,500 hectares (Sth Waikato, Opotiki, Taupo, Waitomo, Ruapehu).

Kaingaroa Timberlands, Harvard Management & NZ Superfund – 188,000 hectares (33%):

- Kaingaroa Forest and a number of smaller forests – 174,000 hectares stocked (mainly Taupo and Whakatane, with smaller holdings in Rotorua and Western BoP).

Lake Taupo and Lake Rotoaira Forests Trusts – 22,000 [5] & 9,300 [6] hectares respectively (6%):

- Located to the South and East of Lake Taupo

- Crown Forestry, owned by the NZ Government, owns tree crop rights to 8,800 hectares of Lake Taupo Forest Trust and 6,100 hectares of Lake Rotoaira Forest Trust. The remaining ~17,000 hectares is managed by New Zealand Forest Managers on behalf of the trusts.

Enrslaw One Limited, majority owned by Tiong Group, Malaysia – 14,700 hectares (3%):

- Karioi and Waimarino forests – 14,700 hectares (Ruapehu).

The dominant forest owners and/or managers in the immediate Kawerau region are HTRG, Kaingaroa Timberlands, Matariki Forests & PF Olsen. New Zealand Forest Managers Limited has significant areas under management in the Taupo and Ruapehu districts.

Foreign Timber Management Organisations (TIMO’s) hold the lion share of CNI forests. Ownership has moved away from the NZ based entities prevalent in the early 1990s, where most participants were vertically integrated companies owning forests, solid-wood mills, and pulp and paper assets. There are now very few vertically integrated entities operating in the CNI [7], resulting in wood processors having little direct control over their wood fibre inputs, outside of contracted supply agreements. As well as this move away from the vertical integration of processing assets and forests, there has been a separation of tree crop and land ownership.

A substantial proportion of the land under the region’s forests is owned by Maori, through traditional land-owning trusts, and the return of land through settlement of historical claims under the Treaty of Waitangi. In the latter case, trees on the land are commonly owned by TIMO clients, with landowners having the option to replant, own and manage future rotations. Climate change ETS liabilities which remain with the landowner will encourage replanting [7].

Most of the region’s forests are certified to Forest Stewardship Council standards [8], which set the international benchmark for responsible forest management.

3. Volume and age profiles of forestry in the CNI

The area weighted average tree age in the CNI is 16 years, with approximately 23% of the plantation between 11 and 15 years old [1]. The typical harvest age for radiata pine, the CNI’s dominant species, ranges from 26 to 32 years [1]. The average age in the CNI’s eight main districts is shown in Figure 2, along with the corresponding available volume of wood.

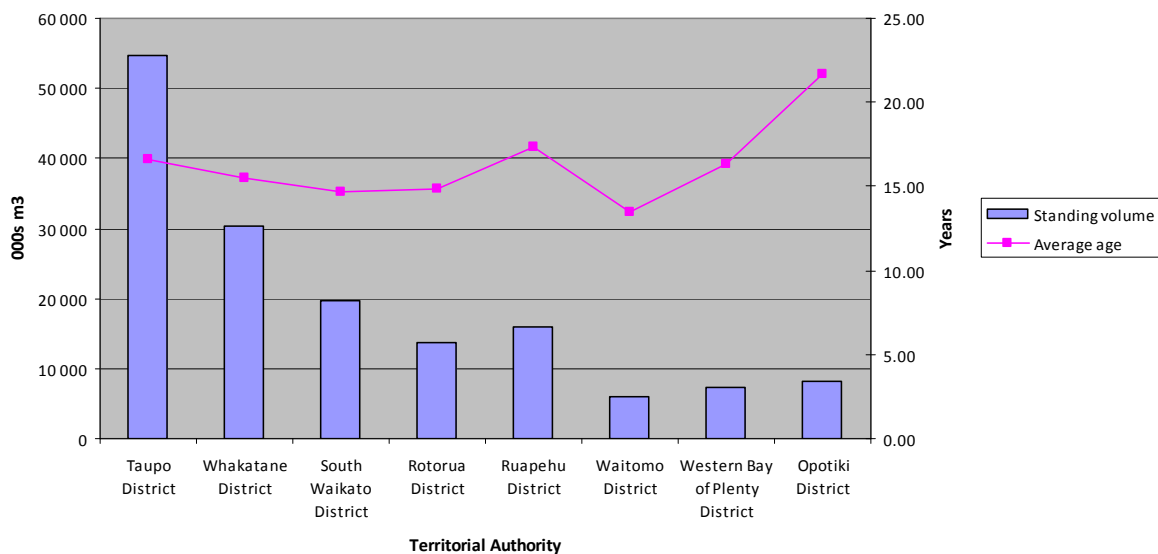


Figure 2: Standing Volume and Average Age of Forests by Territorial Authority [3]

Taupo has the greatest standing wood volume with a little under 55 million m³, followed by Whakatane with a little over 30 million m³ [1]. The average age of trees in these regions is 16.6 and 15.5 years respectively. Opotiki has the oldest forest stocks, with an average age of 21.7 years and a little over 8 million m³ standing volume [1].

4. Species

Radiata pine is New Zealand's dominant plantation forest species, making up 90% of the national estate [1]. Radiata pine's share of the CNI is approximately 93% [3]. Douglas fir is the second most prominent with 4.2%, followed by eucalypts at 1.4%. Other hardwood, softwood and cypress species make up the balance [3].

5. Harvest

NZ's total forest harvest for the year ended 31 March 2011 was 25.050 million m³ [2], up 14.1% from 21.958 million m³ in the year to March 2010. The CNI's harvest for the same period was 11.14 million m³, equating to 44.5% of 2011's national harvest [2]. Since 2003 the CNI has typically contributed between 45% and 50% of New Zealand's harvest, thus 2011's contribution was slightly lower than normal, reflected by the CNI's harvest growth rate of 11.85% being several percentage points lower than that of the national harvest [2].

Both the CNI and national harvests increased by around 17% the year prior, creating a national harvest growth of 33% over the two years since March 2009 [2]. 2011's harvest figure is well in excess of any scenarios tipped in the Ministry of Agriculture and Forestry's (MAF) Wood Availability Forecasts, and demonstrates market forces encouraging harvesting in a buoyant market.

Further to the March 2011 statistics, the annual harvest based on both the June and September quarters has continued to grow. The national quarterly harvest peaked in the June 2011 quarter at 6.88 million m³, reducing slightly to 6.76 million m³ in the September quarter [9]. However New Zealand's annual moving harvest increased from March's result, to 25.713 million m³ in June and further to 26.107 million m³ in September 2011 [9]. This represents the 10th consecutive quarter of annualised growth, which is being driven mainly by increasing log demand from China [10].

6. Future harvests and supply

The CNI region is forecast to provide New Zealand's largest supply of uncommitted forest harvest over the next 30 years. By 2021 it is estimated the CNI harvest will increase to about 12 million m³ per annum [8], which after allowing for some increased capacity within existing mills, is expected to provide between 5 and 6 million m³ of uncommitted unpruned logs annually [11]. This scenario is displayed in Figure 3, but as demonstrated above, market forces and harvest intentions are likely to have the greatest impact on future harvests. At current growth rates the 10 year harvest forecast could be met well before then.

Currently the CNI has no uncommitted pulp logs, with the region's pulp mills utilising the CNI's full supply and also sourcing some logs from surrounding regions. The historical preference of pulp mills is to use fibre from sawmill residues and it is expected that any increased solid wood processing in the region would have a ready demand for its residues, freeing up pulp log supply for other uses. There are also limited uncommitted pruned logs in the CNI, with uncommitted supply expected to hover between 300,000 m³ and 500,000 m³ per year between now and 2022 [11].

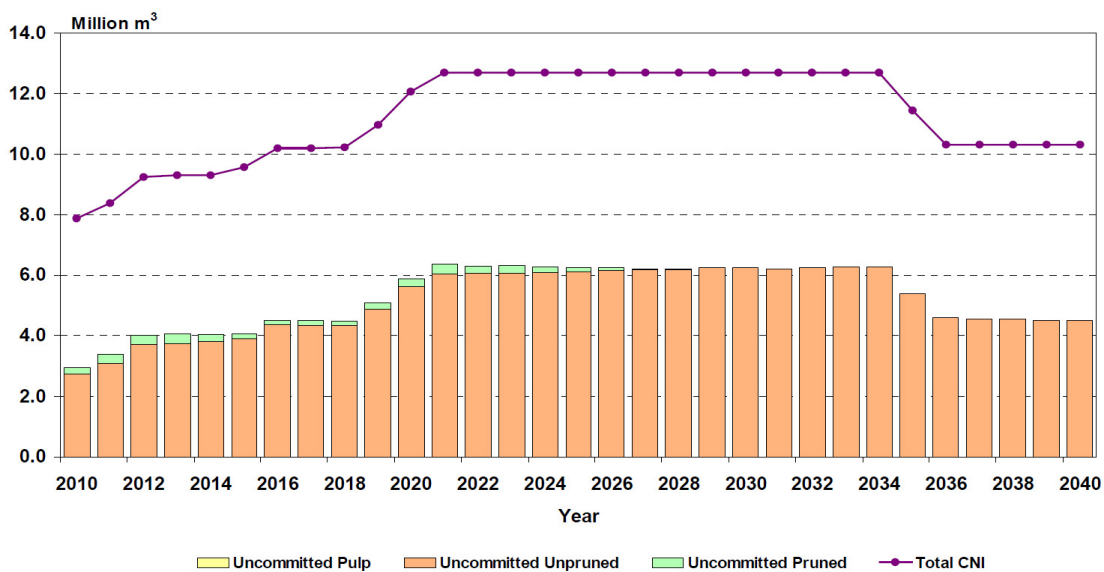


Figure 3: CNI Forecasts – Harvest & uncommitted log availability [11]

7. Replanting & new planting

The CNI has six large nurseries growing exotic plantation forest species, with annual sales of approximately 16.5 million radiata pine, 0.3 million Douglas-fir, and 0.2 million of a variety of other species. Combined this is enough to plant around 20,000 hectares [4].

Replanting in New Zealand for the 2010 calendar year was estimated at 35,200 hectares and new planting at 6,000 hectares, a total of 41,200 hectares. New planting for the 2011 calendar year has been estimated at 12,000 hectares, with year on year new planting growth being attributed to New Zealand’s Emissions Trading Scheme (ETS) and a positive outlook for future wood demand [1]. Using the same proportion for planting as harvesting (~45%), total CNI planting over this time may have been around 18,500 hectares, slightly lower than the capacity above.

As at April 2011, it is estimated the national estate had 54,300 hectares of harvested land waiting replanting [1].

8. Land owners vs. forest owners

Key differences:

- Since 1987 a significant proportion of CNI forest ownership has been under Crown Forest Licences (CFLs), where a forest company owns the trees and the right to rent the land from the Crown for a period of 35 years.
- The Crown Forest Assets Act 1989 sets a process for terminating rental rights should land ownership change from the Crown to Maori. Upon termination occupiers can continue occupation of the land until the full standing crop, as at termination, has been harvested.
- New Maori owners are obliged to continue to rent the land to the forest owner on similar conditions to those agreed with the Crown, for a period of up to 35 years.
- If there is a mutually acceptable agreement between landowner and licensee on future lease terms, licensees may choose to renew their lease after harvesting. If not, landowners could: seek a new lessee, replant the land themselves, go into a joint venture with another forest owner, and/or potentially change land use.

Transfer of tree crop ownership back to land owners where applicable:

- The trend away from vertical integration has the potential to reverse over time as Maori become large-scale forest owners following Treaty of Waitangi settlements. However, the likelihood of this occurring is unknown.
- In June 2008 a settlement between the Crown and Central North Island iwi, collectively covering eight tribes, saw 176,000 hectares of CFL land move into Maori ownership. This deal, termed 'Treelords', was almost exclusively for the land of the Kaingaroa forest.
- This and other deals have the potential to dramatically increase local interest and involvement in commercial plantation forests.
- Other forest areas held under lease or tree crop ownership in the CNI include:
 - i. 143,000 hectares of HTRG's forests, with varying terms on rights to replant.
 - ii. 12,666 of Ernslaw One's 14,700 hectares located in the Ruapehu district [12].
 - iii. 15,000 hectares of stocked forests in the Lake Taupo and Lake Rotoaira forests, leased to the Crown by Maori landowning trusts. Tree crop ownership will be handed back to the trusts by 2026, following the harvest of this first rotation [4].

9. Forest managers & customer supply

Some forest managers or suppliers have in-house sales and marketing capability while others outsource the function to traders and/or agents. The sales process essentially operates in an open market environment between export customers, domestic customers and suppliers.

Major forest owners have a history of long term contracted wood supply to existing domestic processors, with regular price reviews (normally quarterly). With a large export market for most log grades, domestic log prices are heavily influenced by export log prices, and show a corresponding level of volatility [7]. Recently this has had somewhat of an impact on domestic log prices and demand from domestic processors.

10. Processing activities in the CNI

The CNI is the largest wood processing region in New Zealand and at 2010 had installed capacity to process 6.7 million m³ logs per annum. Capacity is split: [11]

- Kraft Pulp – 2.7 million m³
- Mechanical pulp – 0.3 million m³
- Pulp & paper - 0.17 million m³
- CTM pulp – 0.165 million m³
- Plywood – 0.17 million m³
- Sawn timber – 3.16 million m³

Pulp and paper mills in the region account for half of the domestic log use capacity, consume all sawmill chip residues produced in the region, and import logs and residues from outside the region for their processing needs [11].

From 2005 to 2008 the CNI processed more than 70% of its harvest in-region and exported the balance as logs. In the year to March 2011, 6.72 million m³ was processed in the CNI, representing 60.3% of the harvest [13]. Ongoing strong demand for export logs (particularly from China) combined with the recent reduction in sawmilling capacity continues to hold in-region processing to about 60% of the harvest. Without an increase in processing capacity the CNI could be exporting nearly half of its harvest as raw logs by 2021 [7].

The Bay of Plenty Forestry and Wood Processing Strategy published in September 2011 estimates the CNI's forests and infrastructure could handle an increased capacity to process 70% of the harvest

domestically. By 2020 this could divert approximately 1.7 million m³ of logs marked for export in to local processing each year. Further than this, it is estimated the CNI could support twice this level of increased processing and still maintain a market for export logs [7]. The strategy sets the pathway to achieving this through investing in further construction of wood processing facilities in the CNI.

11. Kawerau wood processing operations

The Kawerau industrial site is home to a number of wood processing facilities – the four major facilities being: [4]

Norske Skog Tasman – Newsprint, magazine and directory paper

- Processes 750,000 tonnes of softwood fibre annually, split 500,000 tonnes of saw mill chip & 250,000 tonnes pulp logs.
- Produces 315,000 tonnes of end product, with approximately 55% exported.
- Supplies approximately 85% of New Zealand’s and 30% of Australia’s newsprint demand.

SCA Hygiene Australasia – Tissue, paper towels and hygiene products

- Produces 60,000 tonnes of end product, with approximately 50% exported to Australia and 50% consumed domestically.
- Closed its pulp mill in 2007 and now sources pulp from international and domestic markets.

CHH Tasman – Bleached and unbleached kraft pulp

- Processes 1.3 million tonnes of wood fibre annually, split 450,000 tonnes radiata pine logs, 300,000 tonnes eucalypt logs and 550,000 tonnes sawmill chip.
- Produces approximately 285,000 tonnes of kraft pulp annually, targeted mainly at the New Zealand and Australian markets, while fibre cement pulp is sold globally.
- The eucalypt processing contribution is likely to alter as local eucalypt plantations are harvested out over the next few years.

CHH Woodproducts New Zealand – Structural sawmill

- Processes 630,000 m³ of logs annually.
- Produces approximately 350,000 m³ of sawn product, with roughly 60% used domestically and 40% exported, primarily to the Middle East, Asia and South Africa.

12. Export activities

12.1 Log exports

- At 3.25 million m³ [9], log exports accounted for 48% of the national harvest in the September 2011 quarter, trending down slightly from 49% in the June quarter and 50% in the March quarter [9]. This proportion is still considerably higher than the 42.1% recorded in the March 2010 quarter and trends up from the annual estimate for the year ended March 2011 of 45.9% (11.7 million m³) [14].
- These quarterly statistics demonstrate the current sales trend in New Zealand forestry, with a large focus on export logs from heavily increased harvest volumes.
- Estimated CNI log exports through the Port of Tauranga (which with regard to forestry exports caters mainly to the CNI) for the year ended March 2011 were 4.43 million m³ [9] – equating to 39.8% of the CNI harvest. This was up 15.8% on the previous year.

12.2 Sawn timber exports

- National sawn timber production for the year ended 30 September 2011 was 3.78 million m³, down 6.7% or 270,000 m³ from a year earlier [15].
- Export volumes over the same time grew 4.2% to 2.0 million m³ – due mainly to increased

demand from China. Sawn timber exports from the Port of Tauranga assisted the national statistic, increasing 6.2% to 925,000 m³ over the same period [9].

- CNI production, however, decreased by 11.3% or 179,000 m³ to 1.552 million m³ over the same period [9].
- With increasing export volumes and decreasing production volumes, there is less domestically processed sawn timber being consumed in New Zealand. CNI volumes available for domestic use in the year to September 2011 decreased by 28.5%, from 878,000 m³ to 627,000 m³ [9].

12.3 Pulp and paper exports

- Pulp production fell 1%, or 16,000 tonnes, to 1.56 million tonnes in the year to 30 September 2011. This was caused mainly by a 2.7% (23,000 tonne) drop in chemical pulp production [15].
- Pulp producers may be finding it more difficult to source wood fibre locally due to forest owners exporting large volumes of logs, impacting on sawn timber production thus reducing the availability of residues.
- Pulp exports for the year to September 2011 remained reasonably flat at 800,000 tonnes [15], similar to the figure posted in the year to March 2011.
- Paper and paperboard production also remained flat over the same period at 920,000 tonnes, while paper and paperboard exports increased 1.4% from September 2010 to 390,000 tonnes [15].

12.4 Panel product exports

- Production increased across all panel products in the year to September 2011. Total production was 1.932 million m³, with veneer production increasing by 14.5% to 704,000 m³ [15].
- Panel export volumes increased 12.7% to 928,000 m³ over the same period [15].

12.5 Wood chip exports

- Since 2005 there has been little in the way of chip export from the CNI region, mainly due to residue industries using all available material.
- Chip exports through the Port of Tauranga for the year ended September 2011 were 182 Bone Dry Units (BDU) [9], down from 17,290 BDU in 2005 [4].

13. Harvest and processing expansion

As stated previously, the CNI harvest is expected to increase to about 12 million m³ per annum by 2021, providing an annual uncommitted log supply of between 5 and 6 million m³. If no new or additional wood processing facilities are installed over this time, it is likely the increased harvest will be exported as raw logs. This offers great opportunity for increased domestic processing for export markets.

The CNI's existing wood processing industry intends to expand capacity by about 120,000 m³ per annum by 2015, which would only make a small dent in forecast log availability [7]. The Bay of Plenty Forestry and Wood Processing Strategy has set the goal that by 2020 the forestry industry will be adding value to over 70% of the logs harvested in the region, realigning processing with historical levels prior to the log export boom of the last few of years.

In order to achieve this goal, the strategy sets out the need to attract investment for the construction of six individual processing plants (1 x structural, 1 x plywood/LVL, 2 x appearance and

2 x industrial) with a combined processing capacity of 1.7million m³ per annum [7] and a labour force requirement estimated at 720 people [7].

In addition to expansion through major plant construction, the strategy looks to support opportunities from niche small scale, high value-add products across the wood processing spectrum, and to provide a platform to other biochemical, bio-fuel and bio-product markets [7].

Bio-fuel and bio-chemical markets are expected to develop through utilising harvest and processing residues, which would be well assisted by increased harvest volumes and greater domestic processing capacity. Large-scale commercial production of cellulosic bio-fuel may have unprecedented impacts on the forest sector, but the availability of competitively priced feedstocks for these uses depends on efficient primary processing [7] and the integration of residue recovery with log harvest.

14. Forestry and the emissions trading scheme

The New Zealand Emissions Trading Scheme (ETS) is the price-based mechanism established by the New Zealand Government through the Climate Change Response Act 2002 to: [16]

- Reduce net greenhouse gas emissions below business-as-usual levels
- Comply with international obligations, including Kyoto Protocol.

New Zealand forests are already a significant store of carbon and play a critical role in meeting the country's climate change objectives. There is potential for this to expand through further planting of exotic and indigenous forest species, and the ability for forest owners to monetise the carbon stored in their forests through the earning of carbon units [17]. An attraction to forest owners or growers is that the ETS provides cash flow across the forest rotation, as opposed to funding maintenance, management and tending costs upfront, then waiting up to 30 years to earn revenue from the harvest. Under the ETS it is now possible to earn revenue from about year eight [7].

Forestry was the first sector to enter the ETS on 1 January 2008 because of its potential to remove and store carbon emissions from other sectors [16]. The inclusion of forestry also aimed to create accurate price signals for the conversion of forest land to other land uses, commonly referred to as deforestation [17]. Deforestation is the second largest source of human-induced greenhouse gas emissions globally, and under the Kyoto Protocol, when deforestation occurs it creates a liability [17].

The ETS classifies forests differently depending on whether they were first established after 1989 (post-1989 forest land) or before 1990 (pre-1990 forest land), reflecting the rules under the Kyoto Protocol [16]. Under the ETS the New Zealand Government expects that: [8]

- Deforestation of pre-1990 forest land will reduce substantially.
- Greater numbers of new forests will be planted.
- Existing forests will be managed in a way that increases the levels of carbon stored in them.

With significant areas of under-used and erodible land, the CNI region has great potential to take advantage of both the economic and environmental opportunities provided under the ETS [7].

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