

The Northland Forest Opportunity



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The Brief - 2009

1. Assessment of present and future available log harvest volumes in Northland by grade.
2. Assessment of deployed and proposed processing capabilities in Northland.
3. Matching and highlighting resource gaps between projected log availability and processor intentions.

Enterprise Northland - Objectives

- **Increase GDP**
- **Increase Employment**



Methodology

1. NEFD research, interpretation and wood flow analysis based on NEFD and stakeholder data from demand and supply side - Topuni north to Cape Reinga.
2. Confidential processor data gathering, telephone interviews with industry players
 - » Processors x type (sawmill, veneer, LVL, chip etc)
 - » Processor - targeted log grades
 - » Processor - current & proposed cut x log grade
 - » Processor - export vs. domestic sales ratios
 - » Log sellers - standard market log grades
 - » Log sellers - current sales mix ratios x log grade
3. Preparation of a matrix matching current and proposed consumption by log grade with current and proposed processing capacity respectively.



Northland P.radiata is.....

- Grown from sustainable and renewable plantations that store carbon.
- Has a short rotation relative to many competing species overseas.
- Strong and stiff.
- Easily machined to a very high standard of finish.
- Easily treated to make it highly resistant to insects and decay.
- Readily stained to replicate many of the more expensive and less readily available species including many hardwood species.
- Light and easily transported and handled.
- Energy efficient to process.
- Accepting of many emerging wood modification techniques.
- Able to be mixed in some applications with other materials.

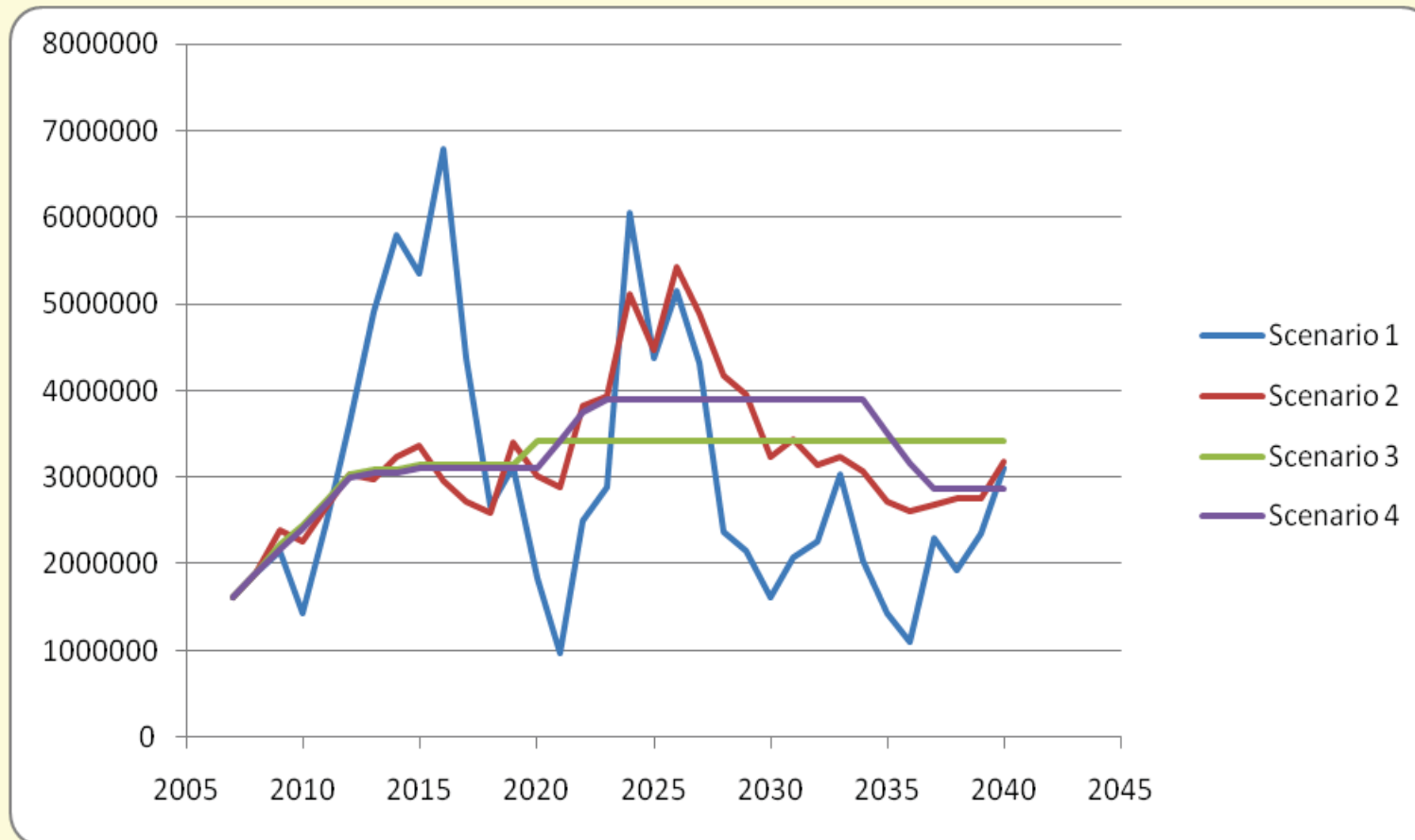


Key Assumptions/Limitations

- A. Analysis confined to Northland region only.....
- B. Projected processor **intentions** illustrated herein for Northland are based on:
 - 1. Their view of the current and expected log resource availability.
 - 2. Perceived opportunities for matching their own plant to a marketing strategy.



Selection of resource planning scenario



Scenario 3 – most appropriate/stable

Discussion

- Scenarios 3 and 4 provide similar (almost identical) yield outputs until about 2018 and then deviate until about 2035.
- Scenario 3 assumes a non-declining yield in perpetuity whereas Scenario 4 assumes that the small owners forests planted from 1994 – 2002 will be harvested over a shorter period of time i.e. 2021 – 2035.

In summary

- Yield regulation provides a more orderly harvesting volume profile that considers logistical and market constraints.

Scenario 3 has been adopted for the purposes of this study for the following reasons:

1. It is slightly more conservative.
2. It avoids the shorter term higher cut of 2021 - 2035 of scenario 4.
3. It provides more stability to 2020, the end point for this study.



Log availability in “Northland” is described as follows.

1. Significant volumes of FSC certified forest (c 85 %).
2. Significant volumes in the control of large forest owners focused on sustainable cash flow outcomes.
3. Projected log availability (Scenario 3) is 2.5 million m³ pa of log, projected to grow to 3.1 million m³ pa by 2014 and then 3.4 million m³ pa by 2020.
4. Projected processor intentions illustrated herein for Northland are based on their view of the current and expected log resource availability and where they perceive opportunities for matching their own plant to a marketing strategy.



Detailed Log Recovery Analysis

This was undertaken through the use of the Radiata Pine Calculator^[1] in the steps as follows:

1. The management of each crop type was modelled to reflect 3 typical regimes – intensive tending (pruning & thinning, including production thinning), framing regime (thinning only) and untended.
2. A survey of standard market grades was undertaken to provide a typical log out-turn mix and a position on log specs for yield modelling.
3. Yield tables were produced for 3 typical Northland forest sites – higher productive farm and forest sites, harder forest clay sites and sand forests.
4. Weighting factors applied to provide a representative yield table for Northland forests.

^[1] Radiata Pine Calculator v3.0 pro, developed for the Plantation Management Cooperative by Leith Knowles.



Log Surpluses projected (Sept 2009)

- An average surplus of up to 1,000,000 m³ pa of log in a mixture of all grades based on surveyed projections.
- Subject to decisions taken by forest owners, processors and markets.
- Surpluses are projected for the A/K grade, 12 – 15 cm branch, 20 cm sed saw logs estimated at circa 750,000 – 800.000 m³ pa.
- Surpluses are also projected in the P1P2 grades, 35 cm sed logs estimated at circa 99,000 m³ pa based on Northland processor intentions vs. projected availability. Whole of tree marketing and some quality issues will impact how these surpluses are delivered to market.
- Supply and demand of S grade saw logs including S1, S2, S3 and S4 is expected to be more or less in balance (Little scope for processor growth).
- All other grades are more or less in balance considering supply vs. stated/projected demand.
- Competition.....



Northland Processors - Profile (2009)

2010	P1P2	S1S2	S3/S4	A/K	RW	Pu	Total	Ratio
Sawmills	125	453	163	101	4	1	846	49%
EWP	44	255	100	37	0	180	615	36%
RWD	0	0	0	0	26	5	30	2%
CHIP	0	0	0	0	0	230	230	13%
'000 m3 input pa	168	707	263	138	30	415	1,721	100%
Consumption - current		10%	41%	15%	8%	2%	24%	100%

1. 23 plants including 16 Sawmills, 3 Engineered Wood Products plants, 3 Roundwood (post and pole) producers and 1 dedicated Chip producer.
2. Currently consume circa 1.721 million m3 of log pa in a mix of log grades.
3. Growth over the next 5 years expected to consume an estimated additional 500,000 m3 pa more taking the projected total consumption to around 2.218 million m3 pa.



Based on - availability/stated intentions

Northland Log Resource Demand Vs Supply Outcomes '000 m3 pa							
Surplus/deficit	P1P2	S1S2	S3/S4	A/K	RW	Pu	Total
2010	77	101	-43	645	-5	-48	728
2011	101	175	-31	717	-2	-52	908
2012	93	267	-14	796	1	-10	1,133
2013	95	264	-13	815	-6	-2	1,152
2014	95	154	-123	760	-6	-2	878
2015	101	174	-117	780	-5	7	940
2016	101	174	-117	780	-5	7	940
2017	101	174	-117	780	-5	7	940
2018	101	174	-117	780	-5	7	940
2019	101	174	-117	780	-5	7	940
2020	128	263	-93	866	-3	47	1,208
Average Sur/Def	99	191	-82	773	-4	-3	973

Theoretical/Actual Vs. Marketing Decisions

Theory vs Market	Pruned	S1 - S4	A/K	R'Wood	Pulp
Theoretical Mix	10%	42%	32%	1%	15%
Current Market Mix	11%	21%	53%	0%	15%
Variance	1%	-21%	21%	-1%	0%

**** Variations from the theoretical available mix occurring during harvest and sales may be driven by;**

- **A variety of conscious forest owner decisions including;**
 - Lack of an alternative domestic processor to consume certain grades (A/K).
 - Short term harvesting decisions to capitalise on strong demand or stand constraints (reality).
 - Shareholder pressures.

- **Or they may simply represent an aberration driven by data collected in a narrow time span.**

- **OR THEY ARE REALITY IN LIEU OF HAVING NO ALTERNATIVES.....**

Key opportunities identified in Northland include:

- An uncommitted log resource well suited to manufacture of Engineered Wood Products, furniture, remanufacture and industrial grades.
- A lack of world class log processing capability able to operate at high speed and low cost and deal with A/K.
- A current lack of secondary and tertiary processing activity.
- Potential to develop energy generation solutions independently or in conjunction with wood processing facilities.



Market outlook – is good for wood

- Urbanisation of China; same pattern Japan & Korea (300-350 million people x 2025).
- Urbanisation of India's population; stirring. Biggest hardwood user in the world.
- Hardwood availability reducing globally.
- Global wood fibre shortages increasingly.
- Storm events, Scandinavia & Eastern Europe. Millions of M3 of coniferous logs toppled.
- Reducing availability causing some large traditional users to look for alternatives.
- Mountain Beetle infestation, British Columbia affecting Spruce Pine and Douglas Fir is steadily creeping south into Alberta and Colorado and starting to jump species.
- Earthquakes and flooding; Italy, Japan, New Zealand, Australia.
- Growing interest in wood as a sustainable and viable alternative to steel & concrete.
- However, our marketing and market solutions are generally poor.....



Northland Gaps & Opportunities include.....

1. 1,000,000 m³ of log grades sold into export markets due partly to a lack of local log processing targeting certain surplus log grades, including mainly A/K grades could be utilised for a range of processing options described herein.
2. Introduction of more independent secondary and tertiary processing options would encourage growth of some incumbent sawmillers (Sawmilling by - products are sold in a raw state due to a lack of local processing capability).
3. Engineered Wood Products - the Northland industry has an opportunity to capture opportunities presented by the Northland log resource and growing demand in EWP coupled with opportunities that exist to use log grades that are in ample supply in the North.



Northland Gaps & Opportunities (cont.)

4. Sawmilling by - products are sold in a raw state due to a lack of local processing capability.
5. Energy generation is an issue for New Zealand as a nation and Northland is not without its challenges in this regard but this presents opportunities.
6. Skill gaps are evident in the labour pool and this presents opportunities for training organisations.



Some ideas to be discussed.....

- Kiln Drying, Sort & Timber Machining Capabilities.
- Cross Laminated Timber Panels (CLT).
- A World Class Industrials Sawmill.
- A Modified Wood Products plant – softwood made, hard.



Kiln Dry, Sort & Timber Machine

Opportunity

- Northland lacks secondary and tertiary processing facilities.
- Kiln dry, grade & sort timber into finished grades primarily for export.
- A 50,000 – 75,000 m³/annum combination of high or med temp dry.
- Plus a variety of handling and processing systems.

Benefits

- Increased margins.
- Increase local consumption of surplus, mid grade sawlog (A/K).
- Develop value added processing (furniture, kitset housing, engineered wood products, components, other) using semi processed materials.
- Improved freight efficiencies.
- Increased growth in the manufacturing sector overall.



Cross Laminated Timber (CLT)

Opportunity

- A world class CLT plant, based in an optimum location producing 75,000 – 85,000 m³ of finished construction panels.
- An opportunity to capitalise on the superior strength and stiffness characteristics of the Northland P. radiata log supply to produce a modern, environmentally friendly product cost competitively by incorporating the most modern processing and recovery techniques.

Benefits

- Demand for Engineered Wood Products demand growing globally & competitively.
- Environmental drivers; sustainability, renewability & carbon storing.
- Leverages off mechanical properties & appearance of Radiata.
- Recent earthquake events NZ, Japan & Italy highlighted the durability of wooden buildings in an Earthquake.
- Tall wooden buildings gaining popularity (13 stories, 16 – 17 stories).
- Provides a simple, whole of log solution for a sawmill.
- **Ideal for processors using A/K grade logs in a whole of log proposal.**



Cross Laminated Timber



Murray Grove Tower – UK, 9 stories, top 8 in wood



A World Class Industrials Sawmill

A world class sawmilling operation, operating at high speed and low cost could capitalise on log surpluses, strength and stiffness characteristics on the Northland log resource utilising 600,000 – 800,000 m³ of log per annum.

Target products could include export and domestic sales options such as:

- Semi processed feedstock for furniture manufacture.
- Semi processed feedstock for remanufactured finishing products.
- Semi processed feedstock for remanufactured structural items.
- Industrial grades for use as formwork laying concrete or for pallet/box manufacture.

Target markets could include:

- Furniture markets in China and South East Asia.
- Mouldings manufactures in Australia, Europe, USA.
- Laminated Beam manufactures in NZ, Australia, & China & Middle East.
- Construction formwork in China, South East Asia, Middle East and India.



Modified Wood; softwood made hard.

Opportunity

- Wood modification plant located at an optimum point in Northland, targeting export markets utilising wood produced by Northland sawmills.
- 50,000 – 75,000 m³ of solid wood for wood hardening purposes.
- P.radiata is softwood that traditionally has struggled to compete with traditional hardwood species harvested mainly from tropical rain forests.
- Traditional hardwoods are becoming increasingly difficult to secure and some of the larger end users including India and China are actively seeking alternative supply.

Benefits

- Growth from appearance mills in the North processing pruned logs and some selected production from other mills processing knotty log grades could supply.
- Adds margin by reducing freight and escalating up the value chain.



There are more.....

- Education requirements – some effort now.
- Engineered Wood solutions (Ply/low LVL).
- Integrated sawmill with laminated members.
- Energy generation.
- Bio polymer.



Next Steps.....

- Working with local Industry to identify investment interest.
- Attracting inwards investment for these opportunities.

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