

ARE WE READY?

WORLD CLASS FORESTRY AND WOOD PROCESSING

*Our **Forests.** Our **Advantage.** Our **Future.***

BAY OF PLENTY FORESTRY AND WOOD PROCESSING STRATEGY

A product of the Bay of Connections Economic Strategy



**TAKE
ACTION
NOW** 



**OUR
FUTURE
IS
CARVED
IN
WOOD**

ACTION PLAN SUMMARY

AN ACTION PLAN FOR A PROSPEROUS INDUSTRY

The key to this strategy is the Action Plan. To achieve the vision of a world-class forest and wood processing region the Bay of Plenty needs to take this strategy, own it, and act upon it – together.

The strategy and action plan are not exclusive to the Bay of Plenty. Wider Central North Island players are also vital to its success.

An essential aspect of the Action Plan is that we work in partnership with national agencies and initiatives, and work closely with local and central government, industry associations and other bodies. The theme of Bay of Connections is just that: building regional, national, international, and business connections. That theme also runs through this strategy. We need to be internationally connected at all times, and connect investors with the opportunity.

The Action Plan falls into two major areas - Investment Environment and Infrastructure. These are the fundamental areas that will make critical contributions to the forestry industry in the region. It is all about creating the right environment for the commercial entities – both existing and new – to succeed.

The Action Plan is not the end point. It is iterative – there will be some actions that the Bay of Plenty Forestry and Wood Action Group put to one side, and there will be other actions that are added. It is intended to be a framework to build on the existing strengths of the industry, and help guide future action, engagement, and achievement.

A key item in the Action Plan is to create the Bay of Plenty Forestry and Wood Action Group. The main purpose of this group is to provide leadership in the Bay of Plenty for the forest and wood products industry – by driving and owning initiatives that will contribute to the goals of the strategy.

The group will be vital to ensuring this strategy is put into action. It will be important for the Group to take a regional and generic industry overview when implementing the Action Plan. The members will be those who can influence and directly contribute to the investment environment and infrastructural policies. It will establish a simple terms of reference, will prioritise the items in the Action Plan, and will put timeframes on those actions – within the next two to five years. It will also refresh the strategy on a regular basis, to ensure that actions remain relevant and targeted to the areas of maximum benefit for the industry and the region.



*The Action Plan falls into two major areas -
Investment Environment and Infrastructure.
These are the fundamental areas that will make critical
contributions to the forestry industry in the region.*

INVESTMENT ENVIRONMENT

IMPLEMENTATION, PARTNERSHIPS AND INTEGRATION

The success of this Action Plan will require resources, time and commitment from numerous stakeholders including local and central government, science, education and research providers, iwi and industry. Collaborative and strong partnerships will be vital.

REGULATIONS AND STANDARDS

Rules and regulations need to be enabling – to increase investor confidence, minimise delays, improve clarity around planning and consenting, provide the appropriate standards for the industry, and encourage and increase the use of timber products in construction.

MARKET DEVELOPMENT

Strong market development will provide opportunities for greater exposure to markets, understanding our customers' needs and drivers, improved reputation, growth in offshore alliances and demand, and will require co-ordinated efforts across the sector.

COMPETITIVENESS

To remain competitive, a process of continual improvement across the industry is necessary. Working to our competitive advantages and adopting innovation early are crucial.

INCENTIVES AND ASSISTANCE

Encouraging and assisting industry to obtain a strong foothold in key markets can provide the important catalyst for the ongoing prosperity of the industry. This is achieved by facilitating and creating an optimal business environment in the Bay of Plenty for the industry to grow and prosper.

LOG SUPPLY SECURITY

A strong and growing industry will need a productive, continually improving, and secure log supply for its markets.

INFRASTRUCTURE

ACCESS AND CAPACITY

The value of efficient access, capacity and logistics to the industry cannot be understated.

ENERGY

We need to capitalise on our significant supply of low carbon energy and unrealised biofuel potential.

SUSTAINABLE LAND USE

Sustainable land use is needed for optimal industry development, and to enhance the region's natural competitive advantages.

RESEARCH AND DEVELOPMENT

Ongoing research and development will enhance the industry's competitiveness, and ensure its continued expansion and prosperity. Leading edge thinking can translate to employment and income gains.

EDUCATION AND TRAINING

A skilled and educated workforce is vital for the current and future state of the industry. Supply of education must align with and be informed by industry needs. There is an opportunity to promote the industry as an attractive career option, and to enhance the skill levels in the industry.

OUR LIVES ARE ENRICHED BY WOOD

THE BAY OF PLENTY ECONOMY IN 2010*

Estimated population of
270,000 – 6 percent of
New Zealand's population.

270,000



2.

Generates \$10.17 billion
in GDP – 5 percent of
New Zealand's total GDP.

104,800 FTEs: 6 percent of
New Zealand's employment.

\$10.17 BILLION



3.

Each FTE in the forest industry
contributes \$215,000 to
regional GDP.

34,100 businesses: 7 percent
of businesses in New Zealand.

7%



4.

Bay of Plenty Workers in Forestry & Logging, and Wood & Paper Product Manufacturing are 3.5 and 2.8 times more likely to work in these sectors than the national average. This is calculated using Location Quotients – anything over 1.0 suggests the industry is a net exporter, and anything below 1.0 means the industry is not meeting the basic needs of its area. So the Forestry industry is a key part of the regional economy.

5.

Over the past 40 to 50 years, Forestry has made a significant contribution to the region's GDP wealth.

In 2010 the industry contributed 10 percent of the regions GDP.

10%

*Information sourced from "Update of the Bay of Connections Regional Economic Development Strategy: Economic and Industry Profile of the Bay of Plenty Region, June 2011, BERL Economics."

OUR WORK IS DRIVEN BY WOOD



We

GROW



We

HARVEST





We

PROCESS

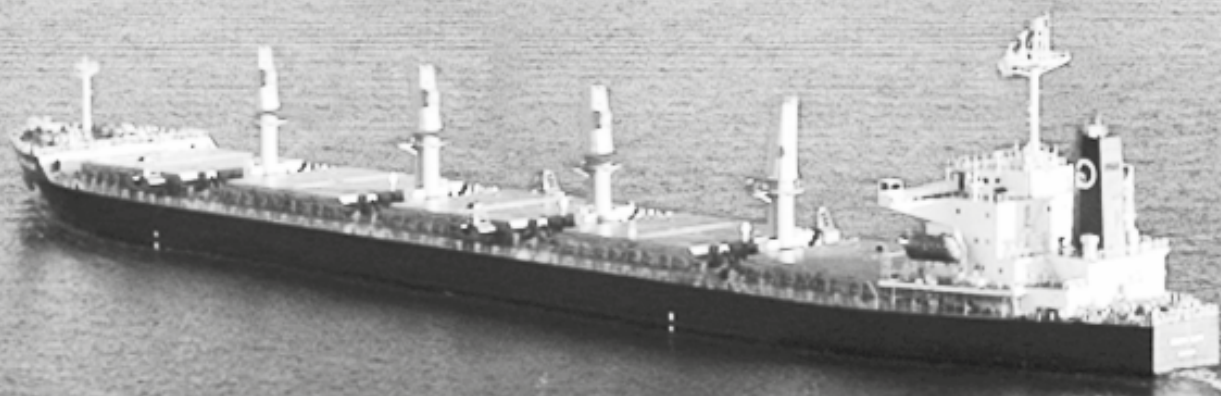



We

EXPORT



BUT!





A large proportion of the trees harvested annually in the region are exported as whole logs, with no local processing. More than 60 percent of the forest products tonnage currently exported through the Port of Tauranga are logs.

In the next 10 years, the log harvest in the Bay of Plenty and the surrounding areas is forecast to increase by between 2 and 3 million m³ per annum. If no new or additional wood processing facilities are installed in this time, all of the increased harvest will be exported as logs, with only a modest contribution to the region's wealth. The challenge is to profitably add value to more of this resource.

**THIS IS WHERE THE
SIGNIFICANT
OPPORTUNITY LIES** 

WE CAN



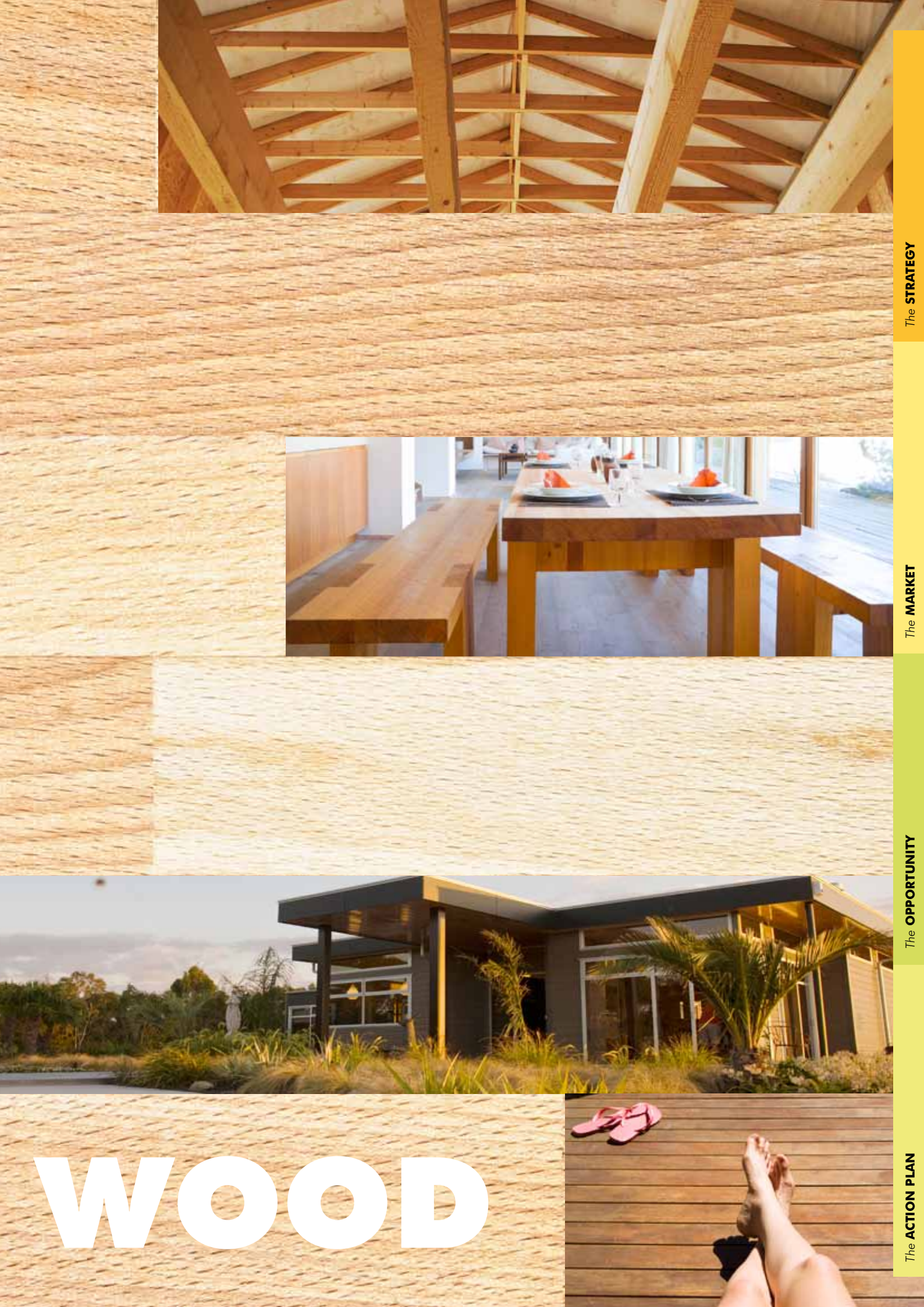
CREATE



MORE



FROM



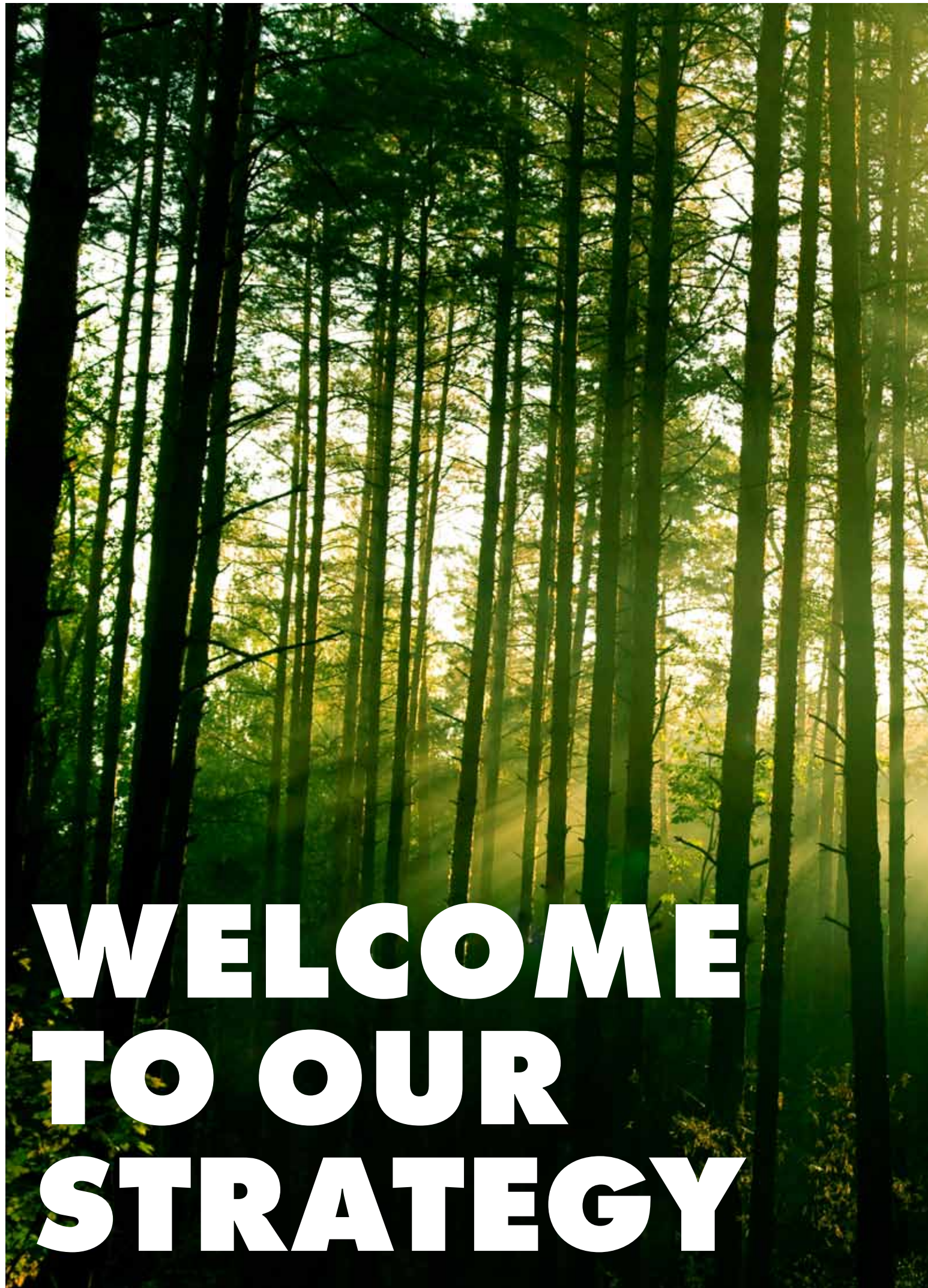
WOOD

The **STRATEGY**

The **MARKET**

The **OPPORTUNITY**

The **ACTION PLAN**



**WELCOME
TO OUR
STRATEGY**



VISION

A World-Class Forestry and Wood Processing Region.

GOAL

By 2020 we will be adding value to over 70% of the logs harvested in the region.

VALUES

Fully committed to working with existing key stakeholders and new investors to ensure the goals of the strategy are implemented.



From **THIS**

TO *This*



The **STRATEGY**

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The Point of This Strategy

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A Bit of Background

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Key Areas of Focus

THE POINT OF THIS STRATEGY

*To promote the opportunity
for extracting increased value from the
region's forest harvest.*

Increased wood processing in the region will contribute to jobs and income and will enhance productivity growth through investment in modern manufacturing equipment and the skills development required to operate the industry.

An exciting opportunity exists at the Kawerau site, with a compelling combination of renewable energy (geothermal), transport infrastructure, engineering and service industries, and additional land being re-zoned for industrial use. Rotorua (Waipa valley), Taupo and Murupara are also attractive wood processing sites.

Compared to other regions, and other countries, the Bay of Plenty has a number of competitive advantages:

- Increasing supply of sustainably grown softwood. Most of the larger plantations are accredited to international standards such as Forest Stewardship Council (FSC) or similar.
- Renewable process energy (geothermal) and electricity (hydro)
- Clusters of highly developed and competitive engineering and support suppliers
- World class research capability in sustainable forest management, wood processing and bio-materials (Scion)
- Access to established deep water port
- Ready availability of skilled people in a great place to live

This strategy supports enterprise and innovation. The value chain for wood processing has many opportunities for innovative uses of the raw wood material and offers niche enterprise opportunities from small scale, high value-add wood products, through to international scale timber, ply, panel, paper mills, and provides a platform to other biochemical, biofuel and bioproduct markets.

THIS STRATEGY IS:

- Market led
- Globally focused
- Encouraging strategic alliances – onshore and offshore
- Aimed at extracting more value from wood
- Aimed at increasing the industry's profitability and competitiveness in the region
- Aimed at helping to increase employment, income levels and living standards across the Bay
- Focused on a range of areas for development, which include:
 - Looking at opportunities for use of wood as an energy supply
 - Better understanding future trends
 - Genetic development of radiata pine and other commercial species
 - Sustainable land use
 - Promoting skills and education as key to the future of the industry
 - Infrastructure
 - Regulatory environment

A BIT OF BACKGROUND

Bay of Connections and the Forestry and Wood Processing Strategy.

Bay of Connections is the region's economic development strategy. At the end of 2008, Bay of Connections was launched by the Bay of Connections Governance Group. The Governance Group is made up of three business leaders, three representatives from each of the sub-regional economic development agencies, a local government business representative, and two Māori economic development representatives.

Bay of Connections identifies 13 key areas of focus for the region's growth and development opportunities. It is a combination of emerging and existing industries. Forestry and wood processing is one of those key areas, so this strategy forms part of the wider development initiative under Bay of Connections.



STRATEGY DEVELOPMENT AND IMPLEMENTATION

This strategy has been developed by leaders in the industry and supporting agencies.

Initially a Bay of Plenty Forestry Reference Group was established. In late 2010 the Forestry Advisory Group was set up. This was led by New Zealand Trade & Enterprise, John Vaney (ex-MAF), Destination Rotorua Economic Development, and the Bay of Plenty Regional Council. Bryce Heard (Lockwood CEO) Chairs the Group. As this strategy forms part of the Bay of Connections, the Forestry Advisory Group mandate comes from the Bay of Connections Governance Group.

Two regional forums were held in April and June 2011. The purpose was to ensure stakeholder input and ownership of this strategy. The forums were well attended by industry leaders, research and science providers, iwi, training and education providers, and local and central government from across the Bay of Plenty, and various parts of New Zealand.

Two pieces of background for this strategy were completed in early 2011 – Report on Wood Processing Strategy Competitive Factors (John Galbraith), and High Level Assessment for Future Opportunities of Wood Products from New Zealand (Poyry). These documents, as well as this strategy can be accessed at www.bayofconnections.com under the Forestry section.

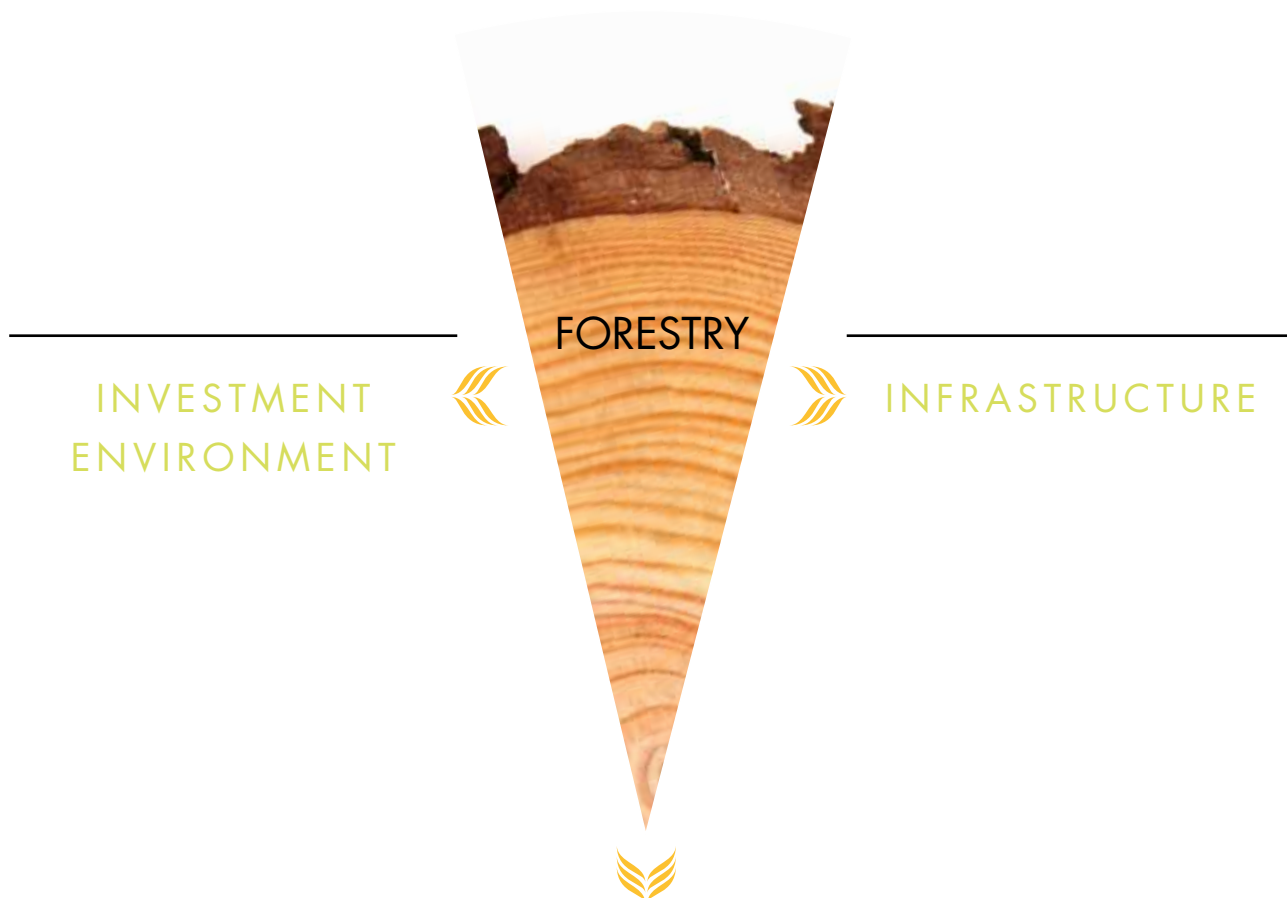
The development of this strategy has been a positive and constructive experience for those involved, and over time, more and more stakeholders will be involved in its implementation. An essential success factor of both this strategy and the action plan will be for the region to maintain close links with key players and implementation agencies – including those of central government and those based in the region.

KEY AREAS OF FOCUS

Many of the Bay of Connections focus areas are intrinsically linked to the success of the Forestry and Wood Processing Strategy.



As we further develop the various industry strategies and action plans, they will all be linked to varying degrees. This integrated approach will ensure we get the best results across all industries the Bay of Connections is involved with.



A collaborative approach is vital to the success of this strategy.

The Action Plan falls into two major areas - Investment Environment and Infrastructure. These are the fundamental areas that will make critical contributions to the forestry industry in the region. It is all about creating the right environment for the commercial entities – both existing and new – to succeed.

Each of the areas under the Investment Environment and Infrastructure are proposed actions and are outlined in more detail in the Action Plan section from page 47.

Before we get to the Action Plan, the next 26 Pages set the industry scene, and context for the strategy.

WE COVER

*Market Demand
Forest Resources, Infrastructure and Business Environment,
Carbon, Science and Innovation
Wood Processing and the Strategic Opportunities.*



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TO *This*





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Market Demand

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Market Opportunities

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Market Outlook

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Infrastructure and Business Environment

MARKET DEMAND

The point of this strategy is to support accelerated development of a market-led, globally focussed, high value wood products industry.

The Forestry Advisory Group commissioned Poyry Forest Industry to prepare a high level future outlook for wood products from New Zealand¹. Their key findings are set out below.

New Zealand's forest products exports have grown considerably over the past two decades, from less than 1 billion US\$ in 1990 to 3 billion US\$ (4 billion NZ\$) in 2010.

Major US\$ export items include logs, lumber, paper/paperboard, chemical pulp and medium density fibreboard (MDF).

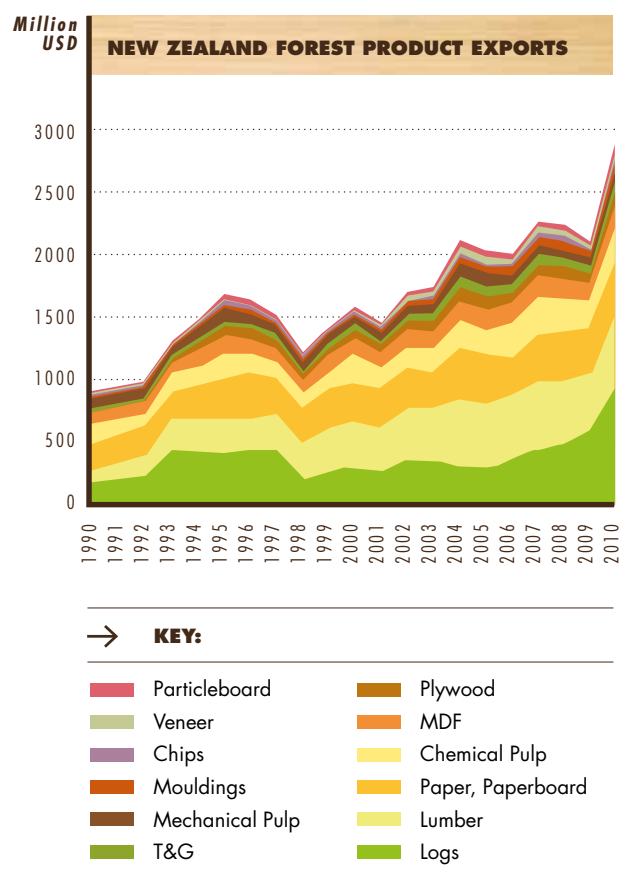
LOGS

New Zealand log exports have expanded in recent years, predominantly due to the strong growth from Asian markets, especially China, which has become the dominant export market for New Zealand radiata pine logs. Together, China, South Korea, India and Japan represent 99 percent of New Zealand's log export market.

LUMBER

New Zealand total lumber exports have expanded only moderately in volume over recent years. However, the US\$ value of lumber exported increased considerably, from US\$523 million in 2006 to US\$608 million (NZ\$810 million) in 2010.

The value of lumber exports to the United States declined during this period, from US\$173 million in 2006 to US\$109 million in 2010. This was due to the United States housing





recession and increased supply from Brazil. Demand from China has more than compensated for this, and is now the largest lumber market for New Zealand in volume (third in value).

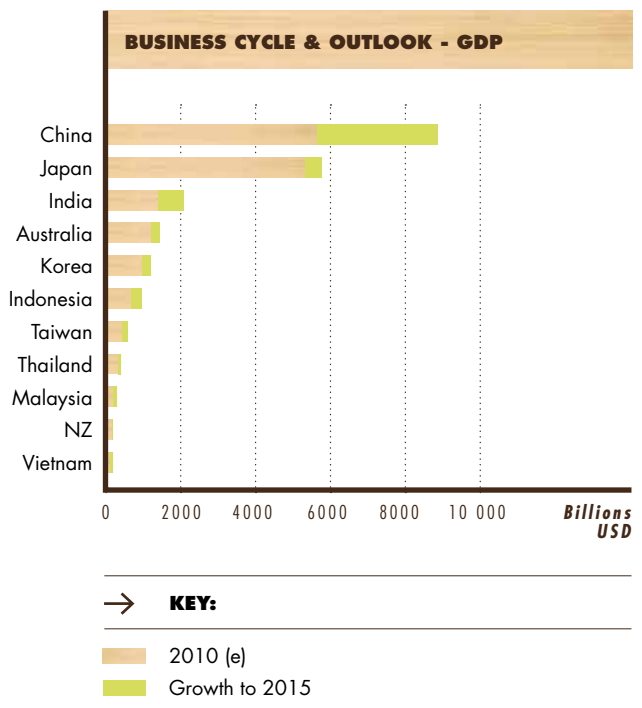
PULP AND PAPER

New Zealand export volumes of pulp remained quite stable from 2006 to 2010. We export a range of paper products; for printing, packaging and hygiene uses. Australia is the dominant market for New Zealand paper. As with pulp, the US\$ value of total pulp and paper exports increased in 2010 after a notable drop during the previous year.

BUSINESS CYCLE AND OUTLOOK

Relative GDP growth in New Zealand's market sphere indicates potential demand for wood products in those countries.

- China, India, Vietnam and Indonesia are expected to experience continued strong growth of greater than 6 percent per annum.
- Malaysia, Taiwan, Thailand and Korea: stabilising at 4 to 5 percent per annum.
- Australia, New Zealand and Japan: moderate 1 to 3 percent per annum.



MARKET OPPORTUNITIES

Key market opportunities are in the rapidly growing economies of China and India, and in traditional markets in Australia and the United States.

CHINA

Chinese lumber imports have exploded in recent years. From 2008 to 2015, China's lumber and panel demand is expected to grow from 96 million m³ to over 115 million m³ per annum. Although New Zealand has expanded its exports to China, its market share has dropped from 9 percent (2007) to 4 percent (2010). This is in sharp contrast to the growth in log exports. For New Zealand to expand its lumber exports to China, lumber production needs to become more competitive in commodity grades.

China also offers a significant opportunity to meet niche and high-end market demand for quality furniture components and various interior fittings and fixtures.

USA

Imports of lumber into the United States have traditionally been dominated by Canada. New Zealand has been a small supplier into this market focusing on clear wood products and competing with the likes of Chile. It is unlikely that New Zealand will be able to compete in the commodity grades of lumber in the United States.

But New Zealand should be able to expand sales in a range of higher value lumber products, taking advantage of the availability of long length clear material. The United States market is expected to regain its importance for New Zealand suppliers as the market conditions eventually bounce back.



HIGH VALUE APPEARANCE PRODUCTS, MARKET DISTRIBUTION CHANNELS

Tenon Limited is a woodproducts processing, marketing and distribution business, focussing on the high value moulding and millwork markets in the United States. Tenon has strong supplier relationships for finished mouldings and boards with the independent pro dealer segment and has channels into two of the largest home improvement chains in the US: Lowes and indirectly, The Home Depot. Tenon also supplies appearance grade lumber to a number of United States moulding and millwork manufacturers. The company operates a clearwood sawmill at Taupo.



AUSTRALIA

New Zealand has traditionally been a significant supplier of structural softwood lumber to Australia. In recent years, European suppliers have been aggressive in the Australian market attracted by the high Australian dollar. Products from these market suppliers have superior wood qualities. During this time, traditional suppliers such as New Zealand and Canada have only managed to maintain supplies at historical levels. Radiata lumber use in structural applications in Australia has been disadvantaged in recent years by changes in grading specifications, which are more easily met by northern hemisphere wood species.

“In 2010, Australia imported more than 300,000 cubic metres of lumber over 6mm from the EU accounting for half of the total imports to Australia in 2010. Imports from New Zealand made up a third of all imports during this time. In 2009, the EU accounted for 35 percent of Australian imports of coniferous lumber over 6mm, while New Zealand accounted for 42 percent.”²

Given Australia's capped domestic supply of softwood and its sound demand platform, the country will require increasing imports of structural lumber. For New Zealand to effectively fulfil this demand, it will need to meet all grading requirements and remain cost competitive at the same time.

INDIA

The large and fast-growing middle class of more than 50 million Indians is expected to increase the demand for wooden furniture and wooden house joinery. It is estimated that the middle class will grow tenfold by 2025.³

EARTHQUAKE REBUILDING

The tragic earthquakes in Japan and Christchurch will result in additional demand for timber for rebuilding. While the use and performance of timber framed building for houses in earthquake zones has been well recognised, there is a growing capability and demand for construction of multi-level timber-framed buildings for commercial and inner city residential purposes. Multi-level buildings require high performance structural products such as laminated beams and laminated veneer lumber (LVL), and emerging products such as cross-laminated timber.

BIOFUELS AND BIOCHEMICALS

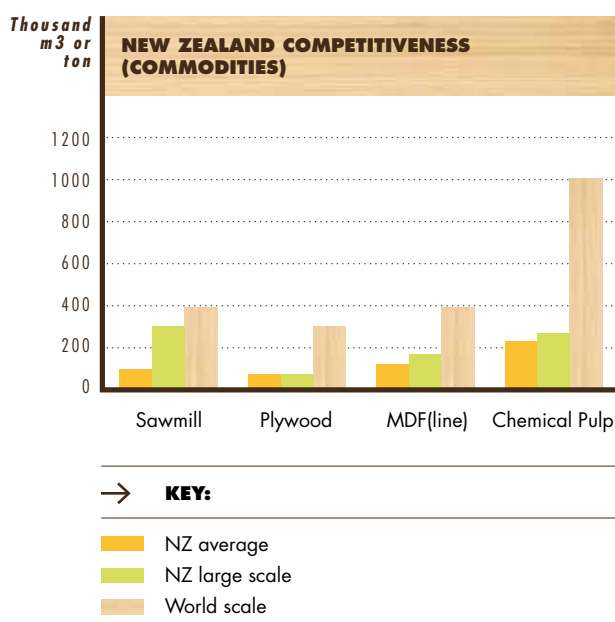
The emerging biofuels and biochemicals markets are expected to move to commercial production over the next decade. Initially these markets will develop around forest harvest and processing residues. The region is well placed to be the centre of New Zealand development of this sector building on existing access to resources and with established infrastructure.



NEW ZEALAND COMPETITIVENESS

1. COMMODITIES

In most previous studies, New Zealand has been shown to have the ability to be competitive, if and when world scale operations are assumed. To date, most of the New Zealand forest industry operates facilities which are small compared to competitors in Australia, Latin America, North America and Europe. This has led to an industry struggling to remain competitive within the international market. However, increased capacity at several sawmills in recent times has replaced many of the smaller structural mills in the Central North Island. These expanded mills are now ready to achieve competitive scale close to global standard.



AMBITION, INVESTMENT, SCALE

Red Stag Timber is the highest capacity sawmill in New Zealand, employing approximately 300 staff and producing over 330,000 m³ of Radiata Pine and Douglas-fir lumber per annum at its Rotorua sawmill. The company's particular focus is on structural lumber products, and it also produces landscaping, appearance and furniture grades.

The owners have made significant investment in new and upgraded equipment in the last seven years and have ambitions to grow to "supermill" scale, processing up to one million m³ logs per annum, as market conditions allow.

2. SPECIALITIES

The New Zealand forest industry is small by international standards, and more importantly, the New Zealand clear-wood supply is very small in the international markets.

Internationally many of the New Zealand products could be regarded as niche, or specialist products, particularly in various clear wood products.

Processing radiata pine into primary products such as structural lumber and clearwood produces a significant yield of non-target grades that are suitable for remanufacturing into specialist products, such as finger-jointed mouldings

and profiles, blanks for furniture components, edge-glued panels, etc. In addition, suitably treated radiata pine is a durable solution for a range of outdoor living and landscaping uses.

3. BIOFUELS

As petroleum based transport fuels become more costly due to reduced availability domestic demand for fuel will stimulate investment based around the existing wood processing sector. The potential for large-scale commercial production of cellulosic biofuel may have unprecedented impacts on the forest sector.



REMANUFACTURING, HIGH VALUE, EMPLOYMENT

KLC Limited is a timber manufacturing business based in Kaingaroa. Since 1997, it has developed from a custom kiln dry operation to a full timber re-manufacturing plant, purchasing green sawn lumber from local sawmills to convert into high value products. KLC invests in leading edge technology to enhance its global competitiveness. Today KLC's wide range of FSC certified, high value products are exported globally (mainly Australia, USA, Europe and NZ). KLC employs approximately 82 staff, producing interior and exterior appearance and structural finishing lines such as fascias and weatherboards.



DURABLE, INNOVATIVE, TECHNOLOGY

Verda produces high quality outdoor timber products to create innovative outdoor living environments. Verda New Zealand Limited is an integrated wood products company based in Rotorua, servicing both domestic and export markets including Europe, Japan, USA, China, the Pacific Islands and Australia. The company is at the forefront of technology, in logistics and optimisation systems and has partnered with technology companies to maintain this leading industry position.

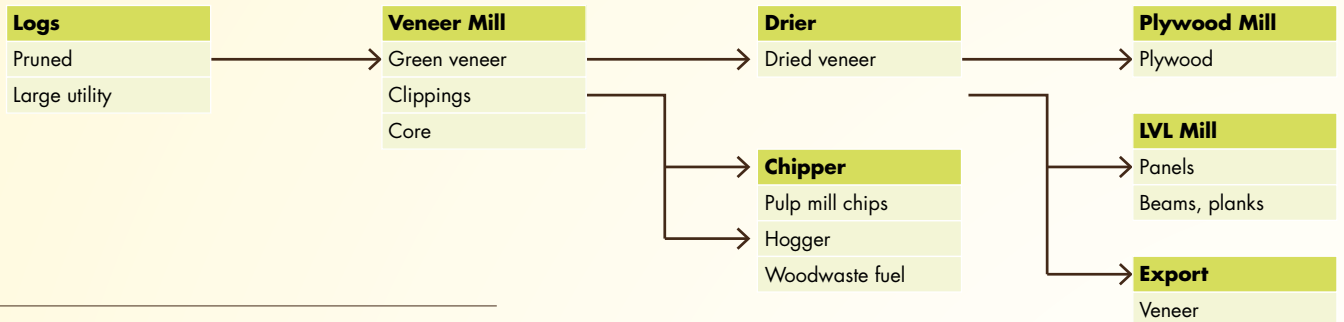
SUMMARY OF SOLID WOOD PROCESSING & PRODUCTS

→ VENEER/PLYMILL/ENGINEERED WOOD

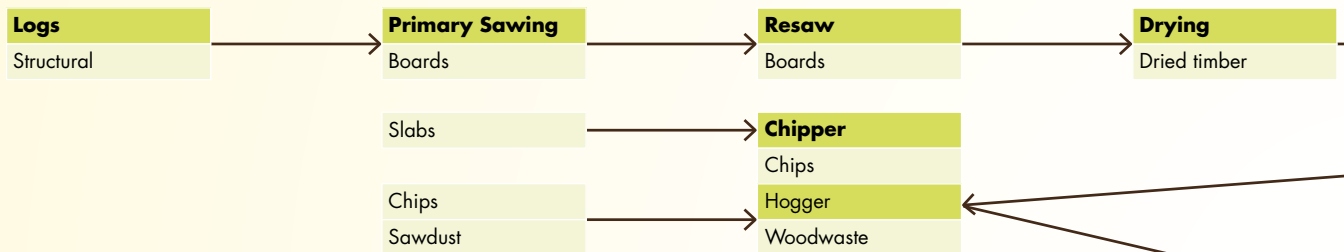
KEY

(Process)

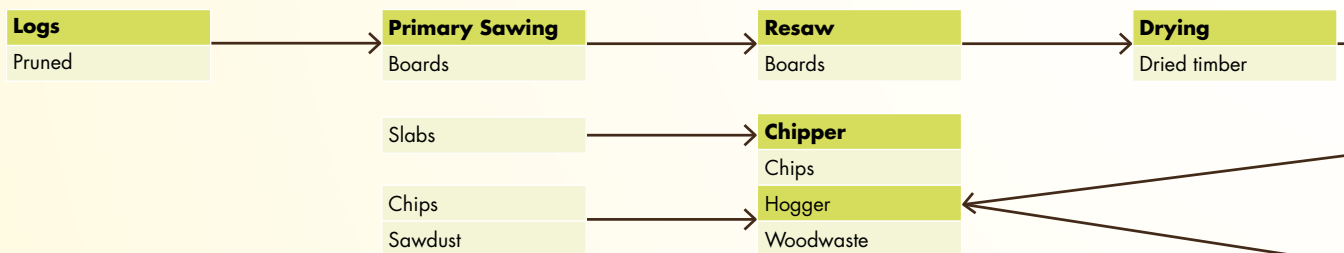
(Product)



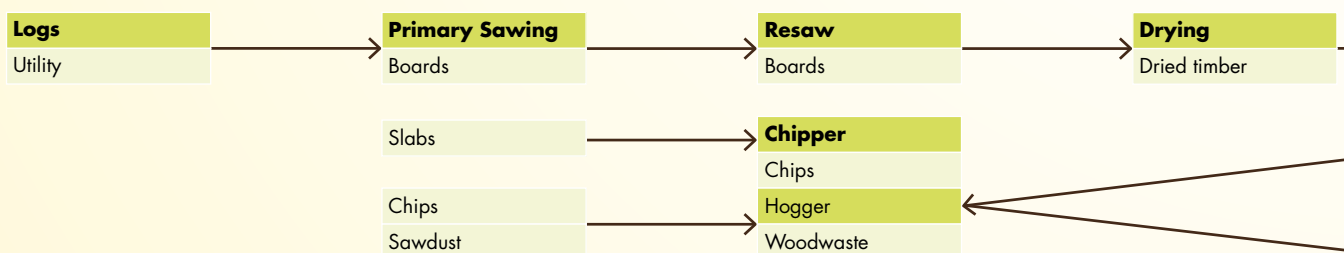
→ STRUCTURAL SAWMILL

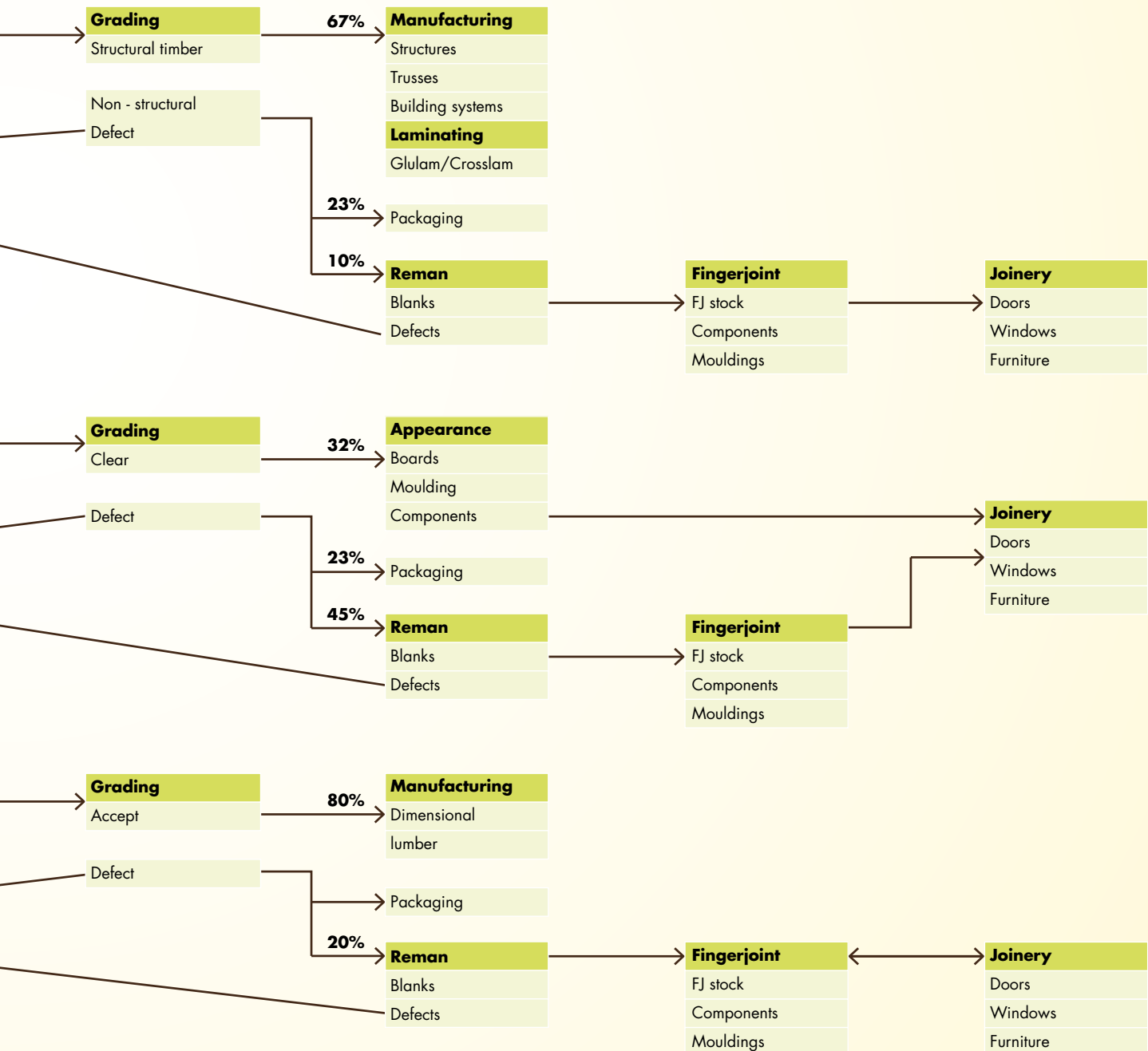


→ APPEARANCE SAWMILL



→ INDUSTRIAL SAWMILL

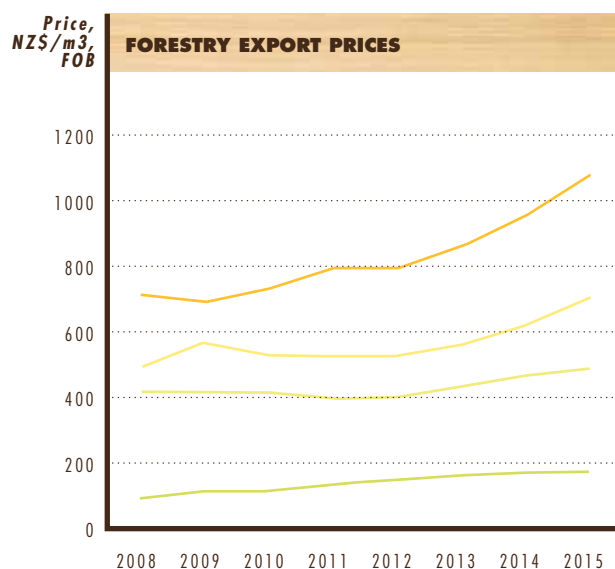
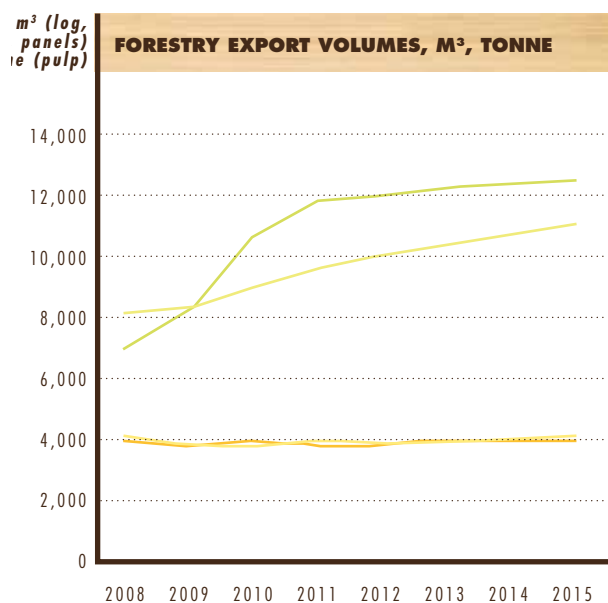




MARKET OUTLOOK

The 2011 MAF SONZAF report⁴ forecasts strong export growth for timber out to 2015.

All forestry export prices are expected to increase, but a major price assumption is that the New Zealand dollar exchange rate with the United States dollar will fall back closer to long term average levels.



→ KEY: VOLUME & PRICE

- Export Log Price
- Timber Price
- Panels Price
- Pulp Price

PLYWOOD

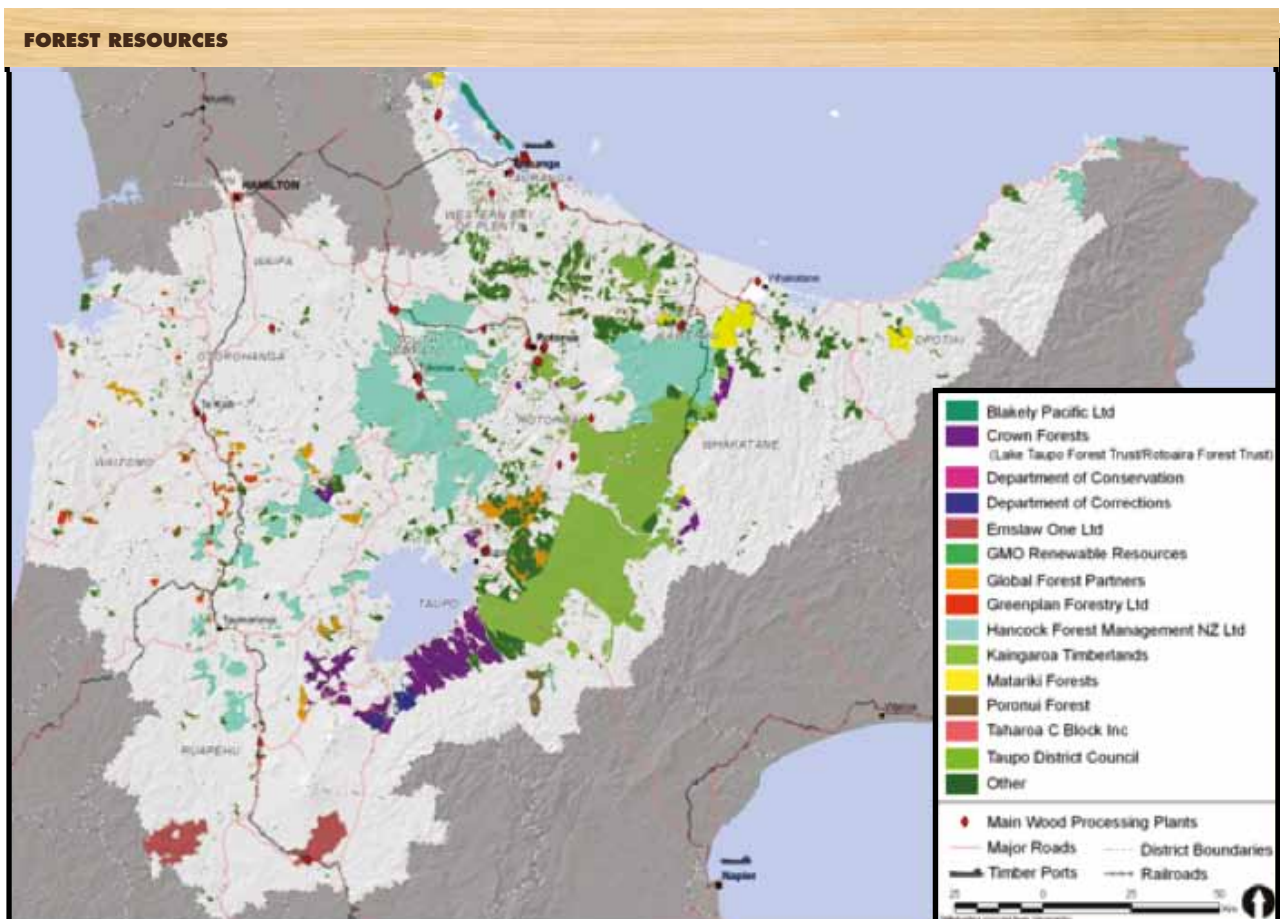
A recent BIS Shrapnel report forecasts "...global consumption of plywood to grow at an average rate of about five per cent per year,...(which is) higher than the forecasts for production,... Over the five years from 2011 to 2015 plywood prices are expected to increase by an annual average of between six and eight per cent..."⁵

RESOURCES

The Bay of Plenty and CNI regions will provide New Zealand's largest supply of uncommitted forest harvest in the next 30 years.

FOREST RESOURCES

The Central North Island (CNI) is the principal forestry growing and processing region in New Zealand, producing 45 percent of the national harvest.



SUPPLY

The Bay of Plenty and CNI regions will provide New Zealand's largest supply of uncommitted forest harvest in the next 30 years.

After allowing for existing and planned domestic processing demand in the region:

- The supply of uncommitted unpruned logs is expected to increase to 6 million m³ per annum by 2021.
- The supply of uncommitted pruned logs is expected to increase to between 300,000 and 500,000 m³ per annum in the period 2012 to 2022.

Bay of Plenty pulp mills currently use all pulp logs harvested in the region and also source some pulp logs from surrounding wood supply areas. Their historical preference 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 from the pulp mills, and a consequent availability of pulp logs for other uses.

OWNERSHIP

Forest ownership in the Bay of Plenty and CNI reflects the pattern across the national estate, with a predominance of foreign private equity investment through Timber Management Organisations (TIMO's), such as Hancock Natural Resources Group. Less than 5 percent of the forests are owned by integrated wood processing organisations. A large area is owned by small forest owners, with less than 1,000 hectares each. This is made up of farm foresters, investment partnerships, and trusts, mainly planted during the 1990's.

A substantial proportion of the land under the region's forests is owned by Māori, through traditional land-owning trusts, and the return of land under settlement of historical claims. In the latter case, the trees on the land are commonly owned by TIMO clients, but the landowners have options to replant, own and manage future rotations. Climate change ETS liabilities which are with the landowner will encourage replanting in forestry.

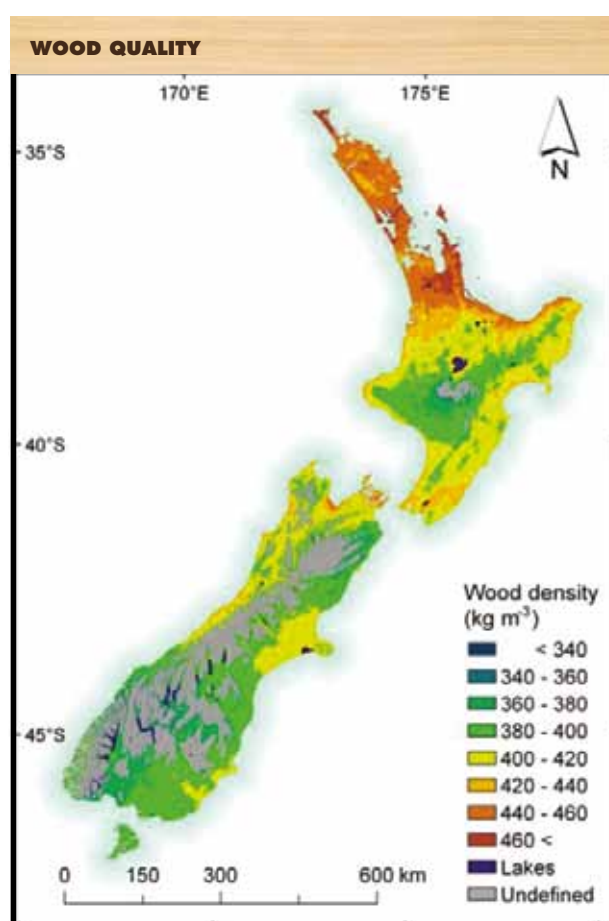
The disaggregated ownership of the forest industry is seen as a potential impediment to securing long term log supply to new wood processing ventures. However, major forest owners in the region have a history of long term contracted wood supply to the existing processors, with regular price review (normally

quarterly). With a large export log market available for most log grades, domestic log prices are heavily influenced by export log prices, and show a resulting level of volatility.

WOOD QUALITY

Wood density in radiata pine is a good indicator of the likely timber stiffness and can be assessed by increment bore in the standing tree. Stiffness of logs and timber is commonly measured by sonic testing and the technology has been well developed in recent years. The warmer northern latitudes of the upper North Island and the north of the South Island produce higher outerwood densities and higher yields of structural grade timber and veneer.

The coastal zones of the Bay of Plenty region produce a high proportion of higher density trees.



Source: Future Forests Research

INFRASTRUCTURE AND BUSINESS ENVIRONMENT

Bay of Plenty's infrastructure and business environment are key points of competitive advantage.

The infrastructure and business environment for the Bay of Plenty is described in a 2010 report for Bay of Connections.⁶ The key points of competitive advantage for locating wood processing in the region are:

1. INFRASTRUCTURE

Wood processing industrial sites are located on high capacity road and/or rail networks connecting the main forest areas to the export port at Tauranga.

ROAD

The normal maximum gross vehicle weight on New Zealand roads is 44 tonnes. From May 2010, the Government introduced a system for permitting heavier trucks (High Productivity Vehicles, or HPV) on approved routes. Some key highway routes in the Bay of Plenty have been approved for up to 53 tonne loading and a number of other routes in the region are expected to be approved for HPV use over the next year or so. Use of HPVs allows productivity increases of up to 20 percent and fuel efficiency improvements of around 9 percent.

RAIL

Carrying more than a third of New Zealand's rail traffic, the region's rail network is the most densely used sector of the national rail network. Rail carries 4.7 million tonnes per annum to and from the Port. The rail lines from Murupara and Kinleith to the Port of Tauranga carry over 3 million tonnes a year of logs, pulp and paper and wood products to the Port.

PORT OF TAURANGA

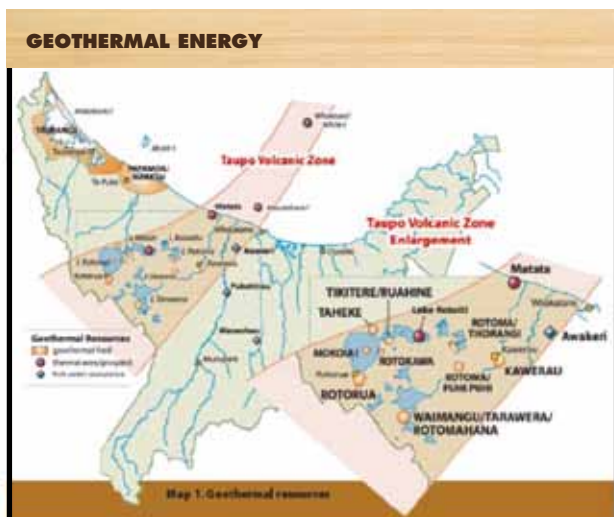
The Port handles 70 percent of the country's forest product exports, as well as kiwifruit, steel, dairy and other products. It is the highest productivity port in Australasia.





2. ENERGY

Substantial reserves of high quality geothermal steam are available in the Kawerau, Rotorua, and Taupo areas for timber drying and other heat processes. Electricity supplied in the region is generated from sustainable hydro or geothermal sources, and is priced in the lowest third of industrial electricity prices in the OECD.



3. EDUCATION AND TRAINING

The Waiariki National Centre of Excellence for the Forest and Wood Industry is a custom-designed and built facility dedicated to providing ongoing educational opportunities for people in the Forest and Wood Industry. The centre is the result of a partnership between the Waiariki Institute of Technology,

Forest Industry Training and Education Council (FITEC) and the University of Auckland.

FITEC is owned by forest industry partners and is responsible for ensuring excellence in all aspects of education and training. FITEC's responsibilities include:

- Providing leadership within the industry on matters relating to skill and training needs
- Designing national qualifications, setting and quality assuring national standards
- Arranging delivery of industry training

4. EXPERTISE

The 60-year history of wood processing in the region has developed a strong base of operating, engineering and service expertise.

The existing wood processing industries in the region have supported the establishment of clusters of heavy engineering and equipment supply companies in Kawerau, Rotorua, Taupo and in nearby Tokoroa. These companies have internationally competitive skills in the manufacture, fabrication and servicing of equipment and components for the wood processing, pulp and paper, energy, marine and construction sectors. A number of these companies also export their products and services to offshore clients and to non-related industries.

A number of consulting and professional services companies in the region have developed strong forest industry knowledge and skills in engineering consulting, design and project management geothermal and environmental services.

We have world leading sustainable forest management expertise.



5. ENABLING BUSINESS

The latest Global Enabling Trading Report 2010 rates New Zealand as the 6th highest country out of 125 economies measured worldwide. The Enabling Trade Index measures institutions, policies and services assisting with the free flow of goods over borders and to their destination, including: market access, border administration, transport and communications infrastructure, and business environment.

CARBON

EMISSIONS TRADING

The forest industry entered the New Zealand Emissions Trading Scheme (ETS) on 1 January 2008. It was the first sector to enter, because of the importance of forestry to New Zealand's ability to meet its international obligations for greenhouse gas emissions.

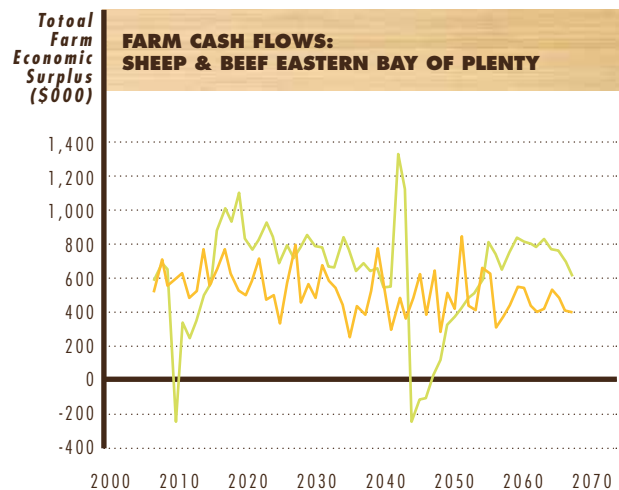
The forest estate is already a significant store of carbon and there is potential for this to grow further with farm and larger-scale plantings of both exotic and indigenous forest species. With significant areas of under-used and erodible land, the region has great potential to take advantage of both the economic and environmental opportunities provided under the ETS.

An attraction to forest owners/growers is that the ETS provides cashflow across the forest rotation. Previously, when trees were planted, money was required upfront for maintenance, management and tending cost for up to 30 years before earning revenue. Under the ETS it is now possible to earn revenue from about year eight.

Crown Research Institute Scion has recently completed analysis of the positive cash flow effects of introducing forestry to sheep and beef farming areas in the region.⁷

→ KEY:

- FES (with forestry)
- FES (without forestry)



LOW CARBON BUSINESS CASE

NZTE have recently commissioned studies that illustrate the significant advantage that New Zealand offers as a location for energy-intensive industries, with its low carbon electricity supply industry, and significant available supply of geothermal energy for generation and process heat.

“One of the most prominent opportunities in many parts of New Zealand is to link clean energy supply with excess resources and fibre to create sustainability precincts built around the core strategy of sustainability and clean technology. The town of Kawerau, with its anchor tenant of a pulp and paper mill in particular, presents a perfect test-bed opportunity for this economic development.”⁸

The Taupo Volcanic Zone, stretching northeast from Taupo through Rotorua and Kawerau, offers huge potential for supporting industry with clean energy technology.



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Strategic Opportunity

WOOD PROCESSING

The Bay of Plenty and CNI is the largest wood processing region in the country and has installed capacity to process 6.7 million m³ logs per annum.

The pulp and paper mills in the region account for half of the domestic log use capacity, consume all of the sawmill chip residues produced in the region, and import logs and residues from outside the region.¹

The solid wood processing industry produces sawn timber and plywood products for the appearance, structural and industrial markets.

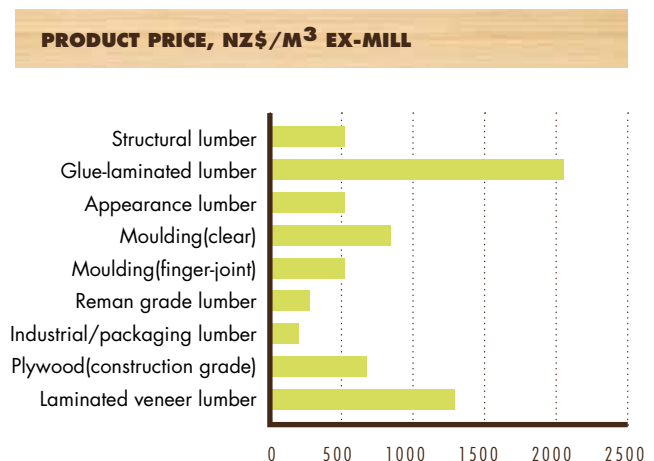
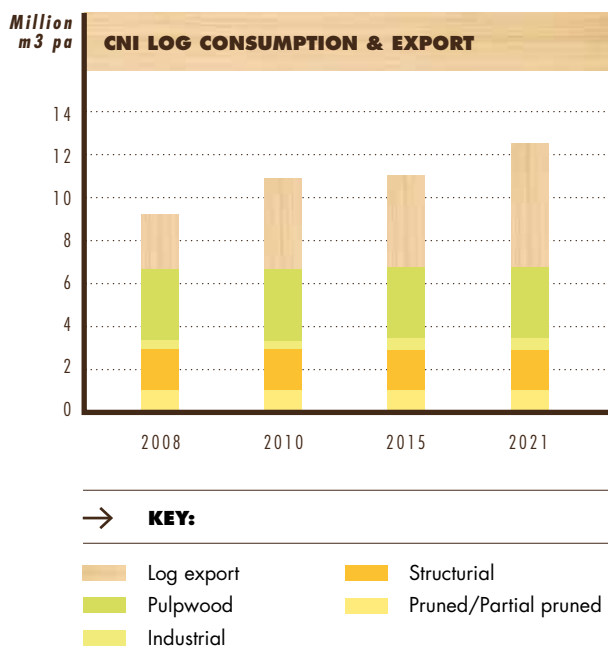
The industry intends to expand capacity by only about 120,000 m³ per annum by 2015. The balance of harvest is likely to be exported as whole logs.

Until recently the region has processed more than 70 percent of its harvest domestically, and exported the balance as logs. But

with strong demand from China in particular for export logs from an increasing harvest, and retrenchment of sawmilling capacity in recent years, only 60 percent of the current harvest is processed domestically. Without a large jump in capacity, the region could be exporting nearly half of its harvest as logs by 2021.

Radiata pine has diverse wood quality, depending on site, age and silvicultural practice. Structural sawmills typically produce only 50 to 60 percent of output as structural grade timber. (About another 20 percent of the primary sawn output can be finger jointed to structural lengths, but finger jointed timber is not currently accepted for framing use in the building code⁹). The rest of the output is graded for non-structural use or remanufactured into appearance grade uses.

The chart on page 30 shows the typical range of processes and products involved in solid wood processing and remanufacturing. Primary processing is defined as the initial sawing/ peeling and drying processes. Remanufacturing requires additional inputs to achieve higher value products.



THE OPPORTUNITIES

Products, such as reconstituted wood panels, pulp and paper, and biofuels generally depend on a feedstock of solid wood processing byproducts - like chips, sawdust and bark.

There are strong future growth opportunities in primary wood processing markets and in a range of remanufactured and derivative wood products. The region's current supply of byproducts is fully committed to existing capacity. The addition of new solid wood processing capacity is essential to increased feedstock for higher value-add remanufactured products and for byproduct uses.

1. STRUCTURAL LUMBER

Structural lumber capacity in the region has been significantly rationalised and retrenched in the last seven years. In this time the number of major structural sawmill companies in the region reduced from five to two, and nine mills were closed. The drivers for change were the introduction of machine stress grading, change in grading rules in Australia, and the need to rationalise capacity into fewer mills with better scale opportunities.

Despite these changes, the recession in domestic house building since 2009 and the loss of market share in Australia has left the industry still with excess short term capacity.

THE FUTURE LOOKS BRIGHTER:

a. Housing

The current level of house building in New Zealand is at historic lows – at around 13,000 units annually – compared with the previous 10 year average of 25,000. The current shortage of house units is estimated at about 15,000. The rebuilding of Christchurch will add about 10,000 new units, plus significant repair and renovation.

b. Commercial and multi-story building

The growing design and performance capability of radiata laminated beam and LVL structural members, coupled with a compelling low carbon story, is fuelling demand for

timber solutions for commercial and multi-story building options. An outstanding example is the new Nelson-Marlborough Institute of Technology building recently opened in Nelson. Again, the demands for rebuilding Christchurch to increased earthquake resistance adds a special dimension to timber solutions.

c. Australian housing market

New Zealand structural lumber producers have been steadily losing market share in Australia in recent years to European and other suppliers. The current loss of share, compared with pre-2004 levels, is about 120,000 m³ per annum. This share can be regained if:

- i. The traditional home and adjacent markets for European producers regain strength and provide a more attractive option for the volumes of European lumber currently being supplied into Australia. In “normal” times, European softwood supply is matched to demand.
- ii. Australian structural lumber grading rules return to being more “radiata” friendly. Australia's own, slower grown, radiata resource more readily meets gp10 and gp8 standards, but is also somewhat negatively affected by the current grading regime.

d. Timber density and stiffness

The only wood supply regions in the country with significant uncommitted resource of medium and high density forests are Northland, Central North Island and East Coast.



2. APPEARANCE GRADE LUMBER

The recovery of the United States housing market will restore strength to the world's largest market for appearance grade lumber. New Zealand producers have competition in that market from softwood plantations in South America. Even during recent recessionary times, the New Zealand producers with established distribution channels into the United States have maintained supply. Southern Cross Wood Forest Products (which owns the Thames Timber sawmill and remanufacturing plant) is currently increasing capacity at its Milton, Otago site.

China and India are the fast growing markets for higher value appearance wood products for manufacture of joinery and furniture. Approximately 15 percent of the New Zealand radiata logs currently exported to China are converted to these end uses.

New Zealand's value proposition to these customers is to consider relocating their (energy intensive) primary processing and drying operations to New Zealand, and export dried dimensional lumber direct to their factories in China, Vietnam and other countries for labour-intensive remanufacturing to final product form. As noted in the Infrastructure and Carbon sections, there are compelling supply chain and green energy advantages to this proposition.

3. REMANUFACTURING

The addition of competitive primary processing capacity to the region could make feedstock available at competitive prices to local remanufacturing ventures. These lower capital and higher labour content ventures offer more attractive industrial opportunities to local investors, than the levels of capital, expertise and risk involved in new world scale primary processing mills.

4. VENEER/PLYWOOD

The CNI has one construction grade plywood mill - the Carter Holt Harvey Wood Products "Ecopine" mill at Kinleith, which supplies local demand and exports to Australia and Asia. The primary opportunity for new ply capacity in New Zealand is as substitution for tropical hardwood plywood production in Malaysia and Indonesia. Strong growth in demand and prices for plywood is forecast for the period 2011 to 2015.

South Asia is currently a major plywood exporting region, supplying to the United States and North Asia, but the resource is under significant pressure from initiatives to reduce tropical hardwood forest clearance. Malaysian plywood producers have investigated the options for shifting veneer and possibly plywood capacity to New Zealand.

SCIENCE AND INNOVATION

Science and innovation are key to the ongoing and future success of the industry. We are fortunate to have world-class research organisations supporting the industry's development:

- **Scion Research** – a Crown Research Institute, based in Rotorua. Scion recently released its Statement of Corporate Intent for 2011-2016, which describes how Scion will work with the forest industry to address its technical challenges and enhance its international competitiveness.
- **Future Forests Research (FFR)** – a partnership between the New Zealand forest industry and Scion, focusing on improvement of forest growing and harvesting activities. Located on the Scion campus, Rotorua.
- **Radiata Pine Breeding Company (RPBC)** - The major activity of the company is in research into the genetic



improvement of radiata pine and applying this research to development of superior genetics.

- **Solid Wood Innovation (SWI)** – focussed on the improvement of wood manufacturing efficiency. Located on the Scion campus, Rotorua.
- **Structural Timber Innovation Company (STIC)** – developing large span timber building technologies. Located at the University of Canterbury, Christchurch.

SWI and STIC are research consortia of wood processing companies, industry suppliers and technology providers, funded 50 percent by shareholders and 50 percent by the Ministry of Science and Innovation.

Their research programmes are well described on their respective websites:

- www.scionresearch.com
- www.ffr.co.nz
- www.wqi.co.nz
- www.expan.co.nz

In June and July 2011, the New Zealand Forest Owners and the Wood Processors Associations released their science and innovation plans. The plans follow the WoodCo Statement on Research Needs for the Forest Industry released in July 2010, which in turn followed announcement of the new science priorities for the Government's investment in research science and technology. Government science strategies include a focus on primary sector productivity and higher value products and processes.

The forest industry, in common with most New Zealand industries, has traditionally made a modest contribution to funding research. The wood processing sector currently invests about \$2 million per annum in collaborative research through SWI and STIC, and industry companies invest an estimated \$10 million to \$15 million per annum in their own programmes.

The science and innovation plans provide a blueprint for increasing the investment in research, particularly in collaborative and industry-good programmes. They are divided into the two major areas of (1) solid wood and fibre products, and (2) bio-energy research – they identify research projects with the objectives of: enhancing existing, and developing new, systems and products; segregation and optimisation technologies; reducing energy, waste and environmental impact; improving safety and health; and developing next generation and sustainable energy production.

The implementation of this Strategy should include a focus on encouraging the industry's involvement in and uptake of, science and technology.

The New Zealand Bioenergy Strategy led by the Forest Owners and Bioenergy Associations sets out a goal of 30% of transport fuel from bioenergy (principally from wood) by 2040. This builds on the commercialisation of wood-to-liquid biofuels that is happening internationally and investors are now evaluating for investment in New Zealand. A key driver for biofuels will be the large volumes of fuel required by the aviation sector who have released a Sustainable Aviation Fuel Road Map.

STRATEGIC OPPORTUNITY

We have an exciting strategic opportunity in the region to capture further growth from forestry and wood products.

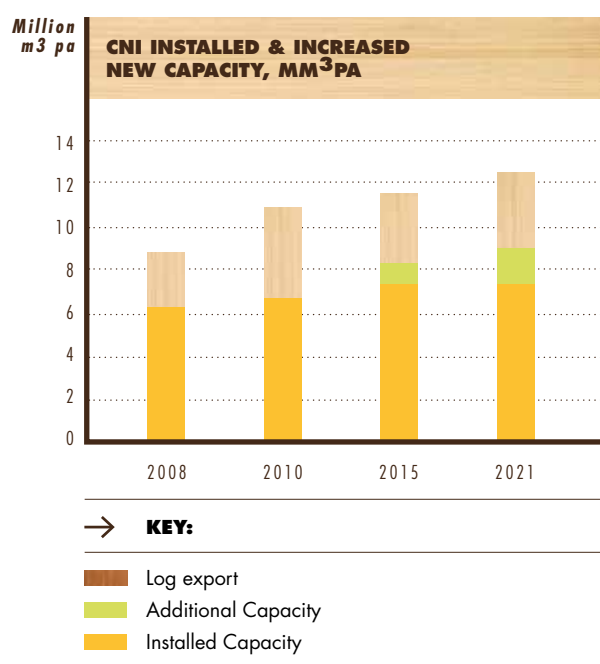
Attracting new capacity in wood processing will contribute significantly to regional wealth – providing we address the underlying factors that are constraining profitability and competitiveness for the processing sector.

There are definite growth opportunities in the structural and appearance grade solid wood markets. Opportunities also exist for higher value remanufactured, residue and biofuel-biomaterial products. But availability of competitively-priced feedstock for these uses depends on efficient primary processing.

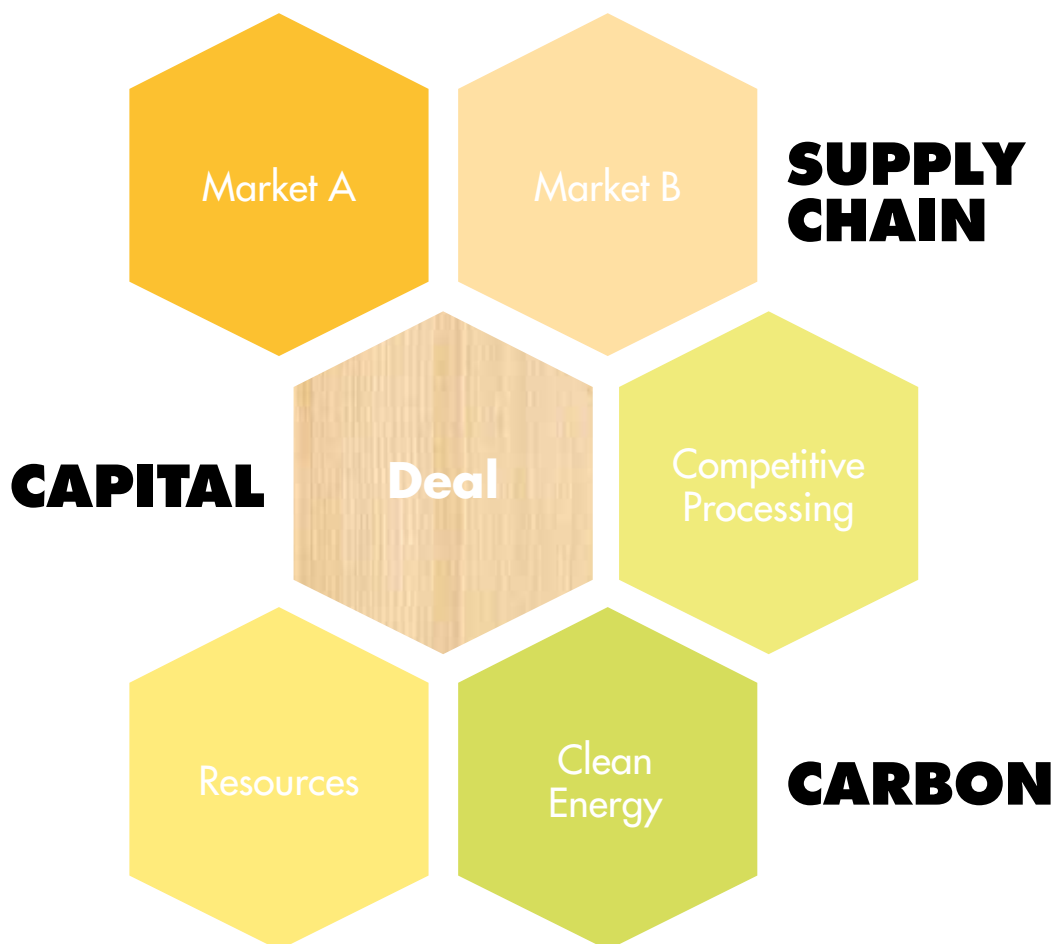
The region's forest resource and infrastructure could support increased manufacturing capacity to processing 70 percent of the harvest domestically. This would mean diverting approximately 1.7 million m³ per annum of export logs to local processing by 2020.

The region could support twice that level of increased processing and still maintain a market for export logs.

With increased capacity and processing, the investment, supply, employment and regional earnings could be:



PROCESSING UNITS INVESTMENT	LOG SUPPLY	EMPLOYMENT (DIRECT)	GDP (REGIONAL)
1x Structural 1x Plywood/LVL 2x Appearance 2x Industrial NZ\$ 400M	1.7M m ³	720	+NZ\$150M



MARKETING AND PROMOTION

In most established industry situations, it is normally left to existing and aspiring industry participants to seek out growth and investment opportunities. There are some examples of appetite for growth amongst existing processing companies, but existing operators are mostly focussed on survival in a still depressed Australasian and United States market environment.

The most likely sources of investment, or demand underwriting investment are offshore. As noted previously, these investor/customers are likely to be:

- Current radiata log buyers and processors in strong growth markets such as China and India, who already have market supply chains

- Current South Asia plywood producers facing reducing supplies of tropical hardwood

Value propositions to these potential investor/customers include strong carbon and sustainability credentials.

Effective promotion of opportunities with strong regional and national economic development potential will require pan-industry and local and central government leadership and assistance. Collaboration and support will be necessary to bring the various components of the deals together.



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Infrastructure

Access and Capacity

Energy


Land Use

Research and Development

Education and Training

INVESTMENT ENVIRONMENT

Timeframes for the next 2 to 5 years will be set by the Bay of Plenty Forestry and Wood Action Group.

AREA		ACTIONS	WHO	TIMEFRAME
Implementation Partnerships and Integration The success of this Action Plan will require resources, time and commitment from numerous stakeholders including local and central government, science, education and research providers, iwi and industry. Collaborative and strong partnerships will be vital.		Create Bay of Plenty Forestry and Wood Action Group to: <ul style="list-style-type: none"> • Link the region to national strategy, national organisations and initiatives • Be responsible for implementing the BOP Forest and Wood Processing Strategy, and assisting with the development of the national WoodCo strategy • Establish simple terms of reference and resourcing • Ensure links in with other Bay of Connections strategies including the Energy strategy, the Supply Chain & Logistics strategy, and the Information Communication and Technology strategy. 	Leadership group comprised of representatives of industry and key stakeholders	
		Promote a structured programme of industry development agendas	Bay of Plenty Forestry and Wood Action Group	
		Participate in ForestWood 2012 Conference, and future conferences: <ul style="list-style-type: none"> • Support WoodCo strategy launch • Demonstrate regional role in strategy 	Bay of Plenty Forestry and Wood Action Group	




AREA		ACTIONS	WHO	TIMEFRAME
Regulations and Standards Rules and regulations need to be enabling – to increase investor confidence, minimise delays, improve clarity around planning and consenting, provide the appropriate standards for the industry, and encourage and increase the use of timber products in construction.		Form a regional standards group to promote increased wood use in the building sector. (BOP/CNI Timber Standards Committee, BOPTSC)	Bay of Plenty Forestry and Wood Action Group	
		Promote timber acceptable solutions in NZ building codes that support the development of wood processing in the region, such as: <ul style="list-style-type: none"> • Finger-jointed structural timber • Building systems • Other solutions of regional interest 	Bay of Plenty Timber Standards Committee, Industry champions	
		Support a national campaign for the development of grading rules more suitable for radiata pine in Australia and other relevant countries	Bay of Plenty Timber Standards Committee	
		Promote enabling local and regional regulatory policy and practice (Resource Management Act, Ten Year Plan, etc) <ul style="list-style-type: none"> • Determine what is required for consent conditions for the expansion of wood processing at existing sites • Create awareness amongst local councils to ensure that alternative wood-based building systems are efficiently permitted 	Bay of Plenty Forestry and Wood Action Group	



AREA		ACTIONS	WHO	TIMEFRAME
Market Development  Strong market development will provide opportunities for greater exposure to markets, understanding our customers' needs and drivers, improved reputation, growth in offshore alliances and demand, and will require co-ordinated efforts across the sector.		Assemble regional marketing material, to illustrate opportunities and success stories Understand our key markets – the needs and drivers of their customers and possible investors	Bay of Plenty Forestry and Wood Action Group	
		Encourage local and central government involvement and leadership in trade missions and other offshore events	Local government, industry, Ministry of Agriculture and Forestry, New Zealand Trade & Enterprise, Ministry of Foreign Affairs and Trade	
		Identify the region's competitive advantages in markets, products, resources, carbon, etc.	Bay of Plenty Forestry and Wood Action Group	
		Support initiatives seeking high value opportunities to be serviced by manufactured radiata pine	Bay of Plenty Forestry and Wood Action Group	
		Encourage new product development, marketing, innovation and design – establish a Forum to achieve this	New Zealand Wood, Bay of Plenty Forestry and Wood Action Group	
Competitiveness  To remain competitive, a process of continual improvement across the industry is necessary. Working to our competitive advantages and adopting innovation early are crucial.		Access/commission cost studies of selected mills/products from NZ to key markets to identify areas of competitive advantage/disadvantage	New Zealand Trade & Enterprise/Investment New Zealand, industry consultants	
		Support the progress and implementation of Future Forests Research projects in steep country harvesting	Future Forests Research	
		Encourage a culture of early adoption of knowledge and innovation that is relevant to the region's competitive advantages.	Scion, and Future Forests Research	
		Foster and/or promote the development of high end industry service sectors, such as engineering, geothermal, segregation technology, etc	Integrate into New Zealand Trade & Enterprise programmes	

AREA		ACTIONS	WHO	TIMEFRAME
Incentives and Assistance Encouraging and assisting industry to obtain a strong foothold in key markets can provide the important catalyst for the ongoing prosperity of the industry. Achieve this by facilitating and creating an optimal business environment in the Bay of Plenty for the industry to grow and prosper.		Encourage a fairer wood processing investment environment: <ul style="list-style-type: none"> Investigate what incentives are available to competitors, such as Chilean lumber producers Explore structured, fiscally-neutral incentives for additional New Zealand export capacity Provide solutions to central government 	New Zealand Trade & Enterprise, Bay of Plenty Forestry and Wood Action Group	
		Government agency and export assistance programmes: <ul style="list-style-type: none"> Encourage availability and uptake of existing programmes 	New Zealand Trade & Enterprise, Bay of Plenty Forestry and Wood Action Group	
		Identify investment and taxation solutions and incentives tailored to the industry	Bay of Plenty Forestry and Wood Action Group	
Log Supply Security A strong and growing industry will need a productive, continually improving, and secure log supply for its markets.		Work with WoodCo to support economic analysis of the value of wood processing to New Zealand, and the understanding of the inter-dependency between growing and processing. <ul style="list-style-type: none"> Complete regional analysis Integrate into national context Value chain analysis 	Bay of Connections, Bay of Plenty Forestry and Wood Action Group	
		Recognise and support initiatives that will stabilise regional wood supply beyond 2030, such as site productivity, tree improvement, and new land planting	Bay of Plenty Forestry and Wood Action Group, Radiata Pine Breeding Company, Future Forests Research	

INFRASTRUCTURE

Timeframes for the next 2 to 5 years will be set by the Bay of Plenty Forestry and Wood Action Group.

AREA		ACTIONS	WHO	TIMEFRAME
Access and Capacity The value of efficient access, capacity and logistics to the industry cannot be understated.		Extend HPMV routes by working with New Zealand Transport Agency to identify and support funding for priority routes, such as: <ul style="list-style-type: none"> • SH30 Rotorua/Tauranga • Utuhina Bridge • Containers 	Forest Owners Association Transport Committee, Regional Transport Forum/ Regional Transport Association, New Zealand Transport Agency	
		Port capacity: <ul style="list-style-type: none"> • Encourage efficient planning and management of the supply chains to and from the port 	Bay of Plenty Supply Chain, Distribution & Logistics Strategy Action Group	
Energy We need to capitalise on our significant supply of low carbon energy and unrealised biofuel potential.		<ul style="list-style-type: none"> • Promote the low carbon business case for primary processing and drying of wood products • Promote the region as a national centre for wood to biofuels commercialisation • Explore clean energy certification, such as CarboNZero, EnviroMark • Encourage options for biofuels for mobile plant (road transport, harvesting machinery, etc) 	Bay of Plenty Energy Advisory Group, New Zealand Trade & Enterprise Clean Energy Project	
Sustainable Land Use Sustainable land use is needed for optimal industry development, and to enhance the region's natural competitive advantages.		Promote and transfer knowledge to support sustainable land use options that include greater awareness of the benefits and use of trees in the landscape. <ul style="list-style-type: none"> • Encourage awareness and application of study reports on better land use (such as Scion report on Carbon Forestry in the Bay Of Plenty Region) • Support development and implementation of web-based land use decision support and carbon auditing tools for the region 	Scion, Bay of Plenty Forestry and Wood Action Group	

AREA		ACTIONS	WHO	TIMEFRAME
Research and Development Ongoing research and development will enhance the industry's competitiveness, and ensure its continued expansion and prosperity. Leading edge thinking can translate to employment and income gains.		Encourage awareness and support for Solid Wood Innovation, Structural Timber Innovation Company, and Scion research and development programmes, including a seminar series for knowledge transfer	Bay of Plenty Forestry and Wood Action Group	
		Encourage the development and use of structural timber segregation tools	Solid Wood Innovation	
		Complete a business and operational plan that outlines the approach to achieving new regional forest productivity and fit-for-purpose feedstock targets	Future Forests Research	
		Support underpinning research required to promote the Kawerau Industrial Symbiosis initiative (and other regional equivalents) as a means to invigorating integrated wood processing, bioenergy and biomaterials opportunities	New Zealand Trade & Enterprise, Bay of Plenty Forestry and Wood Action Group, Ministry of Agriculture and Forestry	
		Adopt a sustainable footprint strategy for the regional wood processing industry that promotes improved solid waste utilisation, best practice wastewater treatment and standardised environmental risk assessment.	Bay of Plenty Regional Council, Bay of Plenty Forestry and Wood Action Group	
Education and Training A skilled and educated workforce is vital for the current and future state of the industry. Supply of education must align with and be informed by industry needs. There is an opportunity to promote the industry as an attractive career option, and to enhance the skill levels in the industry.		Develop an annual Innovation and Productivity event to cover R&D, design, and high value opportunities	Bay of Plenty Forestry and Wood Action Group	
		Create a scholarship programme to encourage new graduate/postgraduate development	Bay of Plenty Forestry and Wood Action Group	
		Work with tertiary institutions to promote the development of relevant skill and knowledge development.		

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George Asher, **CEO** Lake Taupo Forest Trust, Turangi

Stuart Anderson, Regional Team Leader, MAF Sector Performance, Rotorua

David Balfour, Director Timberlands Ltd, Rotorua

Peter Clark, **CEO** PF Olsen Ltd, Rotorua

Lionel Crawley, Regional Manager Bay of Plenty New Zealand Trade and Enterprise, Tauranga

Russell Dale, **CEO** Future Forests Ltd, Rotorua

John Lemm, Director Intalok Ltd, Tauranga

Graeme Marshall, Commercial Manager, Port of Tauranga Ltd, Tauranga

Mark Whitworth, Customer and Cargo Services, Port of Tauranga Ltd, Tauranga

Anthony Olsen, Toi-EDA Bay of Connections Governance Group

Tim Rigter, General Manager Red Stag Timber Ltd, Rotorua

Dr Trevor Stuthridge, General Manager Science, Sustainable Design Scion, Rotorua

Koji Tachikawa, **CEO** Tachikawa Forest Products (NZ) Ltd, Rotorua

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Scion

END NOTES AND ABBREVIATIONS

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⁷ Carbon Forestry in the BOP Region. G West et al, Scion, June 2011.

⁸ The low carbon business case for attracting energy intensive industries to New Zealand. Dr Ben McNeil. Report prepared for New Zealand Trade and Enterprise, July, 2011

⁹ NZS 3604: Timber Framed Buildings (Prior to a revision of the timber grading standards in 2004, finger jointed timber supplied a significant part of the residential construction market. Red Stag Timber, Rotorua, are pushing the case for reinclusion. Pers comm: Phil Lindsay)

www.scionresearch.com

www.ffr.co.nz

www.wqi.co.nz

www.expan.co.nz

www.bioenergy.org.nz/NZBioenergyStrategy2010.pdf

BERL	Business and Economic Research Ltd
CNI	Central North Island
ETS	Emissions Trading Scheme
FITEC	Forestry Industry Training and Education Council
FFR	Future Forests Research
FSC	Forest Stewardship Council
GDP	Gross Domestic Product
HPV	High Productivity Vehicle
MAF	Ministry of Agriculture and Forestry
MFAT	Ministry of Foreign Affairs and Trade
NZTE	New Zealand Trade & Enterprise
RPBC	Radiata Pine Breeding Company
STIC	Structural Timber Innovation Company
SWI	Solid Wood Innovation
TIMO	Timber Management Organisation
WOODCO	Wood Council of New Zealand

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