COMMERCE ACT 1986: BUSINESS ACQUISITION

SECTION 66: NOTICE SEEKING CLEARANCE

15 May 2014

The Registrar
Mergers and Authorisations
Commerce Commission
PO BOX 2351
WELLINGTON

Pursuant to section 66(1) of the Commerce Act 1986, notice is hereby given seeking a clearance of a proposed business acquisition.

EXECUTIVE SUMMARY

(a) *2012 WoodCo Strategic Action Plan identifies potential for New Zealand forest and wood products industry to double export earnings, and reduce volatility, over the coming decade. But that will require substantial investment and innovation, of a kind that only a global leader like Oji, in partnership with INCJ, can provide.*

(b) *The acquisition is being undertaken by (the **Purchaser**, which is wholly owned by JP NewCo, which in turn is owned 60% by Oji and 40% by INCJ. Oji is currently enhancing its global competitiveness by pursuing efficiencies and transforming its portfolio to export aggressively in growth markets. INCJ aims to support Oji, as a leading Japanese company, to further thrive in the global market;*

(c) *The Purchaser is acquiring 100% of the shares in CHHPP, being CHH's pulp, paper and packaging business;*

(d) *This acquisition does not involve any product overlap between the parties (or their shareholders) except in relation to the input market for pulp fibre;*

(e) *However, Pan Pac's and CHH's pulp mills operate in separate geographic markets (Hawkes Bay and the CNI respectively) and as such there will be no horizontal aggregation in the pulp fibre input market. For the past three years, the minimal volumes of pulp fibre that Pan Pac and CHH have sourced from each other's geographic market were due to abnormal supply side events.*

(f) *Increased transport costs prevent a wider geographic market;*

(g) *There will be significantly increased fibre availability in those existing catchment areas (as well as elsewhere) over the next decade;*

(h) *In any case, the merged entity will face sufficient constraint from alternative buyers (i.e. export of pulp logs and wood chips) such that there will be no substantial lessening of competition*;

(i) *Any lessening of competition in the pulp fibre market would be minimal and offset by merged entity's enhanced ability to compete in global markets for pulp;*

(j) *This will be no lessening of competition in the output markets as kraft and mechanical pulps comprise discrete and distinct product markets;*

(k) *The Proposed Acquisition will not raise barriers to entry or expansion in affected markets in New Zealand. Consistent with the Wood Co Strategic Action Plan, however, it will better enable the New Zealand forestry industry to compete in highly competitive global markets.*

(l) *The above conclusions regarding separate geographic markets for pulp fibre, increased transport costs, increasing fibre availability and discrete characteristics of kraft and mechanical pulps all are endorsed by an expert report from the New Zealand Forest Research Institute Limited (trading as Scion). The Scion report is attached as* ***Appendix A*** *and is part of this application.*

(m) *In turn, the Scion report, (together with the contents of the application relevant to the Scion report), was independently reviewed and confirmed by Dr Bruce Manley, Professor and Head of School, School of Forestry, University of Canterbury. Dr Manley's letter to that effect is attached as* ***Appendix B*** *and is part of this application.*

PART 1: TRANSACTION DETAILS

The business acquisition

1 Oji Oceania Management (NZ) Limited (the *Purchaser*) proposes to acquire up to 100% of the shares in Carter Holt Harvey Pulp & Paper Limited (*CHHPP*) from Carter Holt Harvey Limited (*CHH*) (the *Proposed Acquisition*).

2 The Purchaser is a company incorporated in New Zealand and 100% owned by Oji Oceania Management Co., Ltd (JP NewCo). JP NewCo is a company incorporated in Japan and, as at the date of this application, is wholly owned by Oji Holdings Corporation (Oji). It is intended however that at settlement ownership and control of JP NewCo will pass to a consortium with voting rights in that company ultimately held as to 60% by Oji and as to 40% by Innovation Network Corporation of Japan (*INCJ*).

3 Currently some of the New Zealand assets and liabilities relating to the Carter Holt Harvey group's pulp, paper and packaging business are held in CHH. Shortly before the completion of the Proposed Acquisition those assets and liabilities will be transferred by CHH to CHHPP. Therefore at the time the Purchaser acquires 100% of the shares in CHHPP from CHH all of the New Zealand assets and liabilities of the Carter Holt Harvey group's pulp, paper and packaging business will be held within CHHPP.

4 At the same time as the Purchaser acquires 100% of the shares in CHHPP, an Australian incorporated subsidiary of the Purchaser will acquire the Australian packaging business from two Carter Holt Harvey Australian companies.

5 CHH's existing pulp and paper business that will be acquired by the Purchaser is comprised of two pulp mills in the North Island (Kinleith and Tasman), a paper recycling mill (Penrose), and two associated operational units (Fullcircle – waste paper collection and processing, and Lodestar – logistics and transport) which work as a single integrated business. CHH's existing packaging business that will be acquired by the Purchaser is comprised of packaging manufacturing operations in New Zealand and Australia.

6 The Purchaser, CHH and other parties referred to above have entered into detailed agreements to give effect to the Proposed Acquisition. Completion of the Proposed Acquisition is subject to a clearance being obtained by the Purchaser and satisfaction of other regulatory conditions.

7 The Share Sale Agreement and Transfer Agreement, both dated 25 April 2014 are attached as ***Appendix N*** and ***Appendix O***.

8 The Proposed Acquisition will be supported by a number of ancillary agreements between CHH and the Purchaser relating to shared infrastructure, third party supply arrangements, IT assets and personnel, and woodchip supply. In particular, there will be an agreement between CHH and CHHPP for continued supply of woodchips from CHH to the Kinleith and Tasman mills.

9 CHH will retain its building supplies operations, which includes its wood products operations and Carters retail stores. The Whakatane mill (which produces cartonboard) does not form part of the acquisition as it is now owned by Swiss packaging group, SIG, a company which is also ultimately owned 100% by Graeme Hart. As some of CHH's Australian-based assets will be acquired, the parties will

inform the ACCC of the transaction by way of a courtesy letter. As a result of the parties' respective turnovers, the transaction triggers mandatory merger filings in some other jurisdictions being China, South Korea, Taiwan, South Africa, Brazil and Germany.

The person giving notice

10 This notice is given by:

Oji Holdings Corporation on behalf of Oji Oceania Management (NZ) Limited.

7-5, Ginza 4-chome
Chuo-ku
Tokyo 104-0061
Japan

Attention: Hiroyuki Isono
Telephone: +81 3 3563 4385
Email: ojipjguest@oji-gr.com

11 All correspondence and notices to any of the Purchaser, Oji or INCJ in respect of this application should be directed in the first instance to:

Chapman Tripp
10 Customhouse Quay
PO Box 993
Wellington

Attention: Grant David / Sebastian Templeton
Telephone: +64 4 498 4908 / +64 4 498 2401
Email: grant.david@chapmantripp.com/sebastian.templeton@chapmantripp.com

Other merger party

12 The other merger party is CHH, its parent company being Rank Group Limited:
Rank Group Limited
Level 9, 148 Quay Street
PO Box 3515
Auckland 1140
New Zealand

Attention: Mike Youngman, Director, Mergers & Acquisitions, Rank Group Limited
Telephone: +64 9 366 6259
Email: mike.youngman@rankgroup.co.nz

13 All correspondence and notices to Rank or CHH in respect of this application should be directed in the first instance to:

Bell Gully
Vero Centre
48 Shortland Street
PO Box 8
Auckland

Attention: Torrin Crowther / Glenn Shewan

Telephone: +64 9 916 8621 /+64 9 916 8726
Email: torrin.crowther@bellgully.com/glenn.shewan@bellgully.com

Details of the participants

Purchaser

14 Oji Oceania Management (NZ) Limited is wholly owned by JP NewCo which it is intended at the time of settlement will be owned 60% by Oji and 40% by INCJ. Oji Oceania Management (NZ) Limited has been established to facilitate the acquisition of the CHHPP pulp, paper and paper assets (as described in this application) by Oji and INCJ acting together in a consortium.

15 Given the intended 60/40 shareholding (once INCJ has invested) in JP NewCo, and Oji's intended controlling shareholding in the Purchaser, for the purposes of this application references to competitive overlaps between the Purchaser and the target refer to those competitive overlaps resulting from Oji's existing business activities. There is no competitive overlap affecting markets for goods or services within New Zealand between INCJ's existing activities and those of the assets to be acquired by the Purchaser.

Oji

16 Oji Paper Co., Ltd began operations in 1873 as Japan's first industrial-scale paper manufacturer. As Oji has grown, it has acquired assets throughout the world that are aligned to its paper manufacture business. For example, in New Zealand Oji currently owns forest, lumber, wood chip and mechanical pulp operations through its 100% owned subsidiary Pan Pac Forest Products Limited (*Pan Pac*) and forest and wood chip operations through its majority owned subsidiary Southland Plantation Forest Company of New Zealand Limited (*SPFL*). The other Shareholder of SPFL is Itochu Corporation of Japan.

17 Oji's business activities now cover a wide range of areas throughout the world. Its major business lines are:

17.1 *Pulp and paper products business:* Production and sale of container board, white board, packaging paper, newsprint, printing and communication paper, miscellaneous paper, pulp and other related products;

17.2 *Converted paper products business:* Production and sale of corrugated containers, boxboard products, self-adhesive paper, paper diapers, paper bag products and other related products; and

17.3 *Other business:* Wood and tree-planting, real estate, cornstarch production, machinery and other businesses.

18 In addition to Japan and New Zealand, Oji has operations in Australia, East Asia, Europe, North America and South America.

19 Effective on 1 October 2012, Oji completed a corporate restructuring to implement a holding company structure. Oji Paper Co., Ltd. transferred its various divisions into certain specified subsidiary companies and then changed its name to Oji Holdings Corporation (see further detail at the market announcement available at http://www.ojiholdings.co.jp/content/files/english/ir/news/2012/120514_holdings.pdf).

Relevant subsidiaries and parent companies

20 Oji's New Zealand based subsidiaries are Pan Pac and SPFL. Pan Pac owns forests (primarily Pinus Radiata), a saw mill and a thermo-mechanical pulp mill, all in Hawke's Bay. Pan Pac's output is mainly exported to Japan and other Asian markets. Pan Pac does not have any paper or packaging operations in New Zealand. SPFL grows Eucalyptus Nitens in the South Island that is chipped and exported. Further details about the relevant business operations of Pan Pac and SPFL are provided in Part 2.

21 For more information on Pan Pac please see http://www.panpac.co.nz/. For more information on SPFL please see http://www.spfl.co.nz/page5.html.

22 A structure chart for Oji, so far as is relevant to this transaction, is provided at ***Appendix C***.

INCJ

23 INCJ was established in July 2009 as a corporation sponsored by the Japanese government and Japanese private enterprises aimed at promoting innovation and enhancing the value of their businesses. INCJ is capitalised at [ ], with the Government of Japan injecting [ ] and the other founding corporate partners providing [ ].

24 INCJ is incorporated under the Industrial Competitive Enforcement Act as a temporary enterprise for a period of 15 years [ ].

25 INCJ has a total investment capacity of approximately [ ]. INCJ reviews various investment opportunities worldwide, in areas of environment and energy, electronics and IT, biotechnology, and infrastructure (e.g. water supply, railway services and power supply). INCJ aims to enhance the value of its investments by providing growth and risk capital for long term earnings opportunities and providing management support to drive the business plans of its investments.

26 INCJ possess substantial foreign investment experience, but has not previously invested in New Zealand.

27 INCJ's major foreign investment activities include investments in:

27.1 TRILITY Pty Ltd (Australia), which manages numerous water infrastructure assets across Australia;

27.2 Aguas Nuevas S.A. (Chile), which manages numerous water infrastructure assets across Chile;

27.3 Landis+Gyr AG (Switzerland), which designs, manufactures and sells both traditional and smart meters that are used mainly by electricity utilities;

27.4 Seajacks International Ltd (United Kingdom), which operates self-propelled jack-up vessels that are used to install and maintain offshore wind turbines; and

27.5 Nistica, Inc. (United States of America), which supplies agile optical modules used to simplify, automate and make affordable the delivery of high bandwidth applications.

28 Details of INCJ's current shareholders are set out in ***Appendix D.***

CHH

29 The CHH group of companies is based in Australasia and has interests in wood products, pulp, paper, packaging and building supplies. CHH brands include Laserframe, Pinex, Ecoply, HySPAN and Bestwood, and the company's packaging is most commonly used to transport consumer goods. CHH is primarily New Zealand based, but also has packaging and wood products operations in Australia and customer support offices in various international locations. CHH pulp and paper sales offices are located in Hong Kong, Malaysia and Shanghai. CHH's business can be categorised into:

29.1 pulp and paper operations, which include kraft pulp mills and paper recycling plants;

29.2 packaging operations, which include manufacturing of products from paper and cardboard packaging; and

29.3 building supplies, which includes the supply of wood products and, the retail building supplies chain, Carters.

30 For more information on CHH please see http://www.chh.com.

Relevant subsidiaries and parent companies

31 CHH is ultimately owned by Graeme Hart. Mr Hart also has interests in other packaging and consumer goods producers, as well as automotive aftermarket industries.

32 For more information on Mr Hart's interests please see http://www.rankgroup.co.nz/.

33 A structure chart for Rank and CHH, so far as is relevant to this transaction, is provided at ***Appendix E.***

Formal and informal links between the parties

34 CHH and Oji (through their respective subsidiaries) are members of a number of industry bodies:

34.1 *Wood Processors Association of New Zealand:* an industry body for wood processors, see http://www.wpa.org.nz/;

34.2 NZ Forest Owners Association: represents the owners of New Zealand's commercial plantation forests, see http://www.nzfoa.org.nz/;

34.3 New Zealand Shippers Council Inc: a national body representing large volume cargo owners, see http://www.shipperscouncil.co.nz/;

34.4 Major Electricity Users Group: a group which represents the electricity interests of its members who are each major electricity users in New Zealand. The group aims to help its members manage electricity costs and risks and to promote competition for the benefit of electricity consumers, see http://www.meug.co.nz/;

34.5 *APPITA:* the Australasian Pulp and Paper Industry Technical Association, which facilitates the network of stakeholders to advance technical capability and expertise, see http://www.appita.com.au/home; and

34.6 *Pulp and Paper Products Council: Members of the World Market Pulp Forum.*

35 Apart from their common participation in those industry bodies, the parties are not involved in any current joint ventures with each other and have no common directorships.

36 There are occasional arms-length commercial arrangements between Pan Pac and CHHPP for supply of pulp logs or chips. In particular:

36.1 [

];

36.2 [

].

37 Similar occasional supply of surplus logs or chips by Pan Pac also occurs to other processors. For example, there have been some sales of wood chips and logs to WPI's [

].

Commercial rationales for the proposed merger

38 Rank has been exploring the divestment of CHHPP as well as its packaging business, primarily for the following reasons:

38.1 [

];

38.2 [

]

38.3 [

].

39 From Oji's perspective, the acquisition of CHH's pulp, paper and packaging business accords with Oji's global strategy. Oji is seeking to aggressively expand its international operations and considers that CHHPP is a suitable long-term investment that is compatible with Oji's existing businesses (including its existing New Zealand investments, which include Pan Pac's plantation forests, lumber-processing and pulp business).

40 Oji considers that it is able to add value to the CHHPP over the longer term, particularly through the markets, information and technologies which are available

through its substantial existing pulp and paper network and which may become available under its research and development programme. Oji views CHHPP's softkraft pulp based paperboard products as industry leading products. Oji intends to expand the market for these CHHPP products by leveraging its existing customer networks in the Asia-Pacific region.

41 Through joint investment INCJ aims to support Oji, the leading Japanese company in the pulp and paper industry, to further thrive in the global market. INCJ aims to provide financial, technological and management support to promote the creation of next-generation businesses by increasing the flow of technology and expertise.

42 Oji's press release in Japan announcing the Proposed Acquisition and setting out the rationale for the transaction is available at http://www/ojiholdings.co.jp/english/news/2014/140425.html.

PART 2: THE INDUSTRY

Industry sectors within which the Purchaser or CHH have an interest in New Zealand

43 At a very high level, the forestry industry operates as follows:

43.1 trees are planted, and felled (typically 25- 30 years later);

43.2 the highest value part of the tree is typically exported or provided to a domestic saw mill, where it is processed into lumber and other wood products, and wood chips are produced as a by-product of that processing;

43.3 parts of the tree that are unsuitable for the saw mill are typically exported or sent to a pulp mill:

(a) pulp is produced using the wood chips that are made from pulp logs and also "slab chips" - wood chips produced as a by-product of processing saw logs at saw mills and plywood mills;

(b) pulp is produced through either a chemical process (kraft pulp) or a mechanical process (mechanical pulp);

43.4 pulp is then used to produce various paper and board products;

43.5 paper and board can be further processed into various types of paper products and packaging.

44 Product can be exported at most stages in the supply chain (as logs[1], chips, processed wood, pulp or paper).

45 The description and schematic of the forestry industry set out below is reproduced from Appita's Pulp and Paper Industry Guide 2013. It provides a useful introduction to the scale of New Zealand's forest estate and relative fibre usage by different sectors of the industry:

Indigenous forests cover 6.5 million hectares (22%) of New Zealand's large area. Plantation forests cover more than 1.7 million hectares (6%) of the country and 93% is privately owned.

The four largest owners are Hancock Natural Resource group (14%), Kaingaroa Timberlands (10%), Matariki Forests (7%) and Ernslaw One (6%). Plantation standing timber is 90% Pinus radiata. Harvesting has sharply increased in the last two years to cover 26 million cubic metres annually, with the maturation of plantations established in the 1970s and 1980s lifting capacity. The Ministry for Primary Industries forecasts that the available annual wood harvest could reach 35 million cubic metres in 10 years.

[1] Pulp logs are exported to be used in pulping facilities overseas, mainly from ports that are not near a New Zealand pulp mill such as Picton, Wellington, New Plymouth, Timaru and Bluff. Pulp logs intended for pulping are generally not exported from the Port of Napier, as pulp logs in this region are used by Pan Pac's pulp mill. But pulp logs capable of saw milling are exported from the Port of Napier and Pan Pac's pulp mill competes on price to acquire these logs.

The plantation resource is the basis for New Zealand's wood processing industry, which includes about 370 sawmills with an additional 12 mills involved in the production of medium density fireboard, particle board, laminated veneer lumber and plywood.

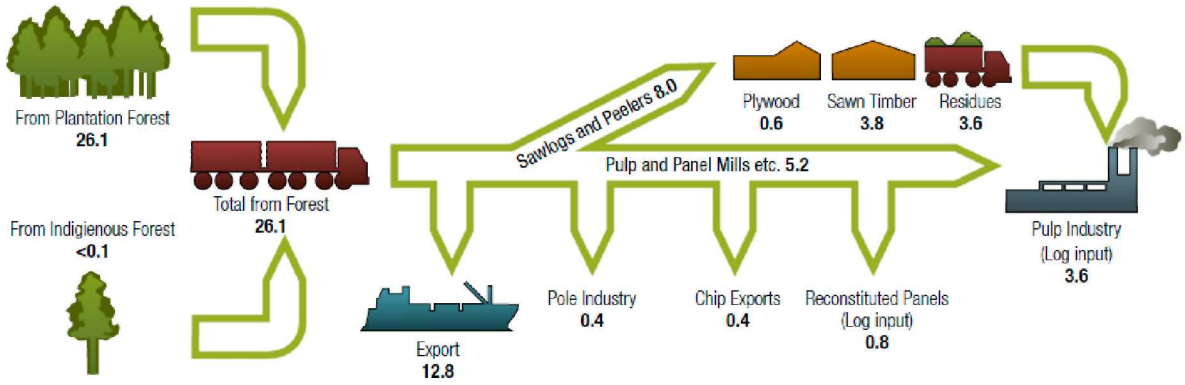
Approximately 70% of the harvested volume is exported in a variety of forms and the sector contributes more than 3% to the country's GDP. Exports of all forest-based products were valued at contributing NZ$4.7 billion to the economy in 2011 by Statistics New Zealand and Forest Owners Association.

China is the biggest external market for forestry products at NZD 1.4 billion, with 72% in logs and 13% in pulp. Australia purchases NZ$0.9 billion, of which 18% is sawn timber and 30% by value is paper and paperboard. The latter is exported primarily to the trans-Tasman operating companies such as CHH and Norske Skog.

Wood chips exports are primarily destined for Japan but are small in volume and value in relation to the overall forestry products market.

The Ministry for Primary Industries designed a simple schematic, reproduced below, to display the use of logs by the local industries and the export of logs and pulp, which are major contributors to New Zealand's export income. It shows the relative position of the various categories of wood usage. The volumes in the figure are based on estimates published jointly with the New Zealand Forest Owners Association Inc. (FOA) in their 2012 'Facts and Figures' brochure.

Flowchart of Harvested Wood Logs shown in Million Cubic Metres Roundwood Equivalent for the Year to 31st December 2011.



46 As set out in Part 1, the Proposed Acquisition involves CHH's pulp, paper and packaging operations (in addition to Fullcircle and Lodestar operational units). These industry sectors are described below along with the forestry, lumber/wood products, chemical by-products and retail building supplies sectors, where one or both of CHH and Oji also have operations, but which will remain largely unaffected by the Proposed Acquisition.

Forestry

47 CHH has previously sold the vast majority of its forestry interests. It retains a small amount of forestry (including that on land surrounding the Kinleith mill which acts as a buffer) but does not sell any of this timber to third parties. CHH also takes stumpage contracts over certain forests (giving it the right to harvest timber from a defined

forest area). It uses the timber harvested to supply its pulp mills and saw mills and sells the surplus saw logs on the open market.

48 Turning now to Oji's forestry presence in New Zealand, Oji owns forest operations in New Zealand through Pan Pac and SPFL.

Pan Pac

49 Pan Pac's forests are all located in Hawke's Bay. Pan Pac's forest plantings are over 99% Pinus Radiata. Pan Pac has 33,500 hectares of forest. Pan Pac's rights in 30,000 hectares of these forests are forestry rights (the land is owned by the Crown or local Iwi). Pan Pac owns the forestry rights and the land designated as Tangoio Forest.

50 The location of Pan Pac's forestry operations are shown on the map below:

51 Pan Pac's saw mill primarily produces appearance grade lumber. This requires logs with particular characteristics that provide lumber with a strong visual quality. Pinus Radiata is a variable species and Pan Pac's saw mill is only able to process some of the trees grown in Pan Pac forests. The excess that Pan Pac cannot process is either exported, provided to other local saw mills, or used to make pulp at the Pan Pac plant.

52 Pan Pac's target clearfell age for Pinus Radiata is 28 years. The annual area harvested is approximately 1100 hectares.

53 When a tree is felled, different parts of a Pinus Radiata are used for different functions depending on the characteristics of that part of the tree. While different operators will have slightly different specifications, generally speaking:

53.1 any part of the tree less than 10cm in diameter (i.e. the top of the tree) is typically not used;

53.2 any part of the tree that is between 20cm and 1m in diameter, is not less than 4m in length, and is free of defects, is usually considered a saw log and is sent to saw mills for processing into wood products;

53.3 any part of the tree that is less than 20cm, or greater than 1m, in diameter, or contains unusual defects, is considered a pulp log which will be chipped for pulp making.

54 Approximately [ ] of logs harvested from Pan Pac forests are utilised by Pan Pac's own lumber and pulp divisions. The remaining logs (primarily logs that are not suitable for Pan Pac's appearance grade saw milling facility) are either sold domestically, or exported.

55 Pan Pac's domestic saw log customers are generally saw mills based on the eastern side of the North Island, and the Wairarapa. The following saw mills are supplied almost daily:

55.1 [ ];

55.2 [ ];

55.3 [ ]

55.4 [ ].

56 In addition, Pan Pac supplies to the following saw mills on an occasional basis:

56.1 [ ];

56.2 [ ]

56.3 [ ].

57 All of Pan Pac's saw log customers return the residue wood chips to Pan Pac on a commercial basis. In addition, JNL Gisborne, Davis Sawmilling Masterton and ATS Levin supply wood chips to Pan Pac having acquired their saw logs from elsewhere.

SPFL

58 Oji holds 51% of the shares in SPFL. SPFL's forests are located in the southern South Island and its plantings are over 99% Eucalyptus Nitens. SPFL manages [ ] hectares of forest, from planting through to harvesting, to chipping of the logs for export. This wood is not, and will not be, used by Pan Pac or CHH, so is not relevant to this application.

Lumber/wood products

59 CHH's lumber/wood products operations do not form part of the Proposed Acquisition.

60 The CHH Woodproducts New Zealand business group manufactures and markets a full range of wood based building products, including timber, plywood, laminated veneer lumber (LVL), particleboard, and a range of interior decorative products, supplied from nine major manufacturing operations spread throughout New Zealand. Its customers are domestically based major merchant groups such as Carters (also owned by CHH), Placemakers, Bunnings and ITM.

61 Pan Pac produces appearance grade lumber and requires wood that is relatively free of knots. Pan Pac exports most of the non-appearance grade lumber it processes for further processing into crates and pallets for use offshore. As Pan Pac's lumber business is primarily export oriented, it does not mill lumber to meet New Zealand structural specifications.

62 Wood chips produced as part of the saw milling process are used by the parties in their respective pulp mills. Post acquisition, CHHPP will continue to receive wood chips from CHH in the same manner as it currently does. Essentially, the current "internal" supply arrangements will be formally recorded post acquisition. [

]. These are long term arrangements.

Pulp

63 Pan Pac and CHH both manufacture pulp at their respective North Island pulp mills.

64 CHH manufactures kraft pulp via a chemical process at its Kinleith and Tasman mills. CHH also manufactures NSSC (Neutral Sulphite Semi-Chemical) pulp which is a product that is created from both mechanical and chemical processes. NSSC is used internally by CHH to produce fluting medium and linerboard.

65 The Pan Pac mill near Napier originally produced thermo mechanical pulp (*TMP*) via an electro-mechanical grinding process. In 2012 Pan Pac upgraded its mechanical pulp mill so as to produce a higher grade bleached-chemi thermo mechanical pulp (*BCTMP*). Since its recommissioning the Pan Pac mill has produced both TMP and the higher grade BCTMP. The Pan Pac mill now has capacity to produce [ ] of BCTMP and [ ] of TMP.

66 The article entitled "Technology of pulping and paper-making in Australia and New Zealand" from "APPITA'S Australia and New Zealand Pulp & Paper Industry Guide" attached as ***Appendix H*** provides a brief description of the respective kraft, TMP and BCTMP pulping processes. A more detailed comparison of those processes is set out in the Scion report.

67 As will be readily apparent, kraft pulp and TMP/BCTMP are not substitutable from the supply-side. Suppliers cannot easily shift production in the short-run using largely unchanged production facilities and little or no additional investment. On the contrary, kraft and TMP/BCTMP mills are fundamentally different operations; and shifting production from kraft pulp production to TMP/BCTMP production or vice versa would require massive investment and long-term change.

68 The only common factor in their manufacture is that kraft pulp and TMP/BCTMP pulp are made using the same general input fibre: being wood chips from both pulp logs and saw log by-product. Other inputs required by the respective pulping processes are significantly different, with mechanical pulping using substantial energy and kraft pulping using chemicals to separate fibres.

69 Similarly, kraft and TMP/BCTMP are also not substitutable on the demand-side. Just as the products are made by a different manufacturing process, so too they have different strength and quality attributes (which means they have different uses and price

ranges). BCTMP has better aesthetic qualities than TMP but its strength is not materially greater than TMP. BCTMP and TMP are not nearly as strong as kraft pulp.

70 The NSSC process sits between mechanical pulping and kraft pulping. Unlike Pan Pac's output, NSSC is produced from a blend of Eucalyptus and Poplar woods (both hardwoods). This means that it has different properties and therefore different uses. Mechanical pulp contains significantly higher levels of fibres which leads to low freeness which is detrimental to the efficiency of creating linerboard. Further, mechanical pulp does not have the same bonding strength of semi chemical pulp. The fluting in the corrugated medium is able to be maintained due to the thermoplastic characteristics that NSSC possesses. When the linerboard and medium are combined it results in packaging that performs well in humid conditions. If NSSC were substituted for TMP in other applications it would be detrimental to the performance of the products being created.

71 Further, NSSC is low yield compared to TMP, so therefore it takes more fibre to produce the same amount. Consequently, NSSC is more expensive than TMP.

72 Prior to the recommissioning of its mill in 2012 Pan Pac Prior to the recommissioning of its mill in 2012 Pan Pac exported most of the TMP pulp it produced to its parent, Oji, in Japan. Pan Pac also exported some TMP pulp to other Asian markets and Australia, but sold very little product domestically. Indeed all of its output (i.e. of TMP) in 2011, being the last production year before the plant's conversion, was exported.

73 Since the Pan Pac mill's recommissioning to produce both TMP and BCTMP pulps, most of its output has continued to be exported, but with China having rapidly become the major destination of its BCTMP output. New Zealand remains a very small user of BCTMP. This is illustrated in Table 1 below:

Table 1: Destinations of Pan Pac's pulp output

[

]

74 We have been told that in [ ]. Of the total dried pulp sold, [ ]. [ ] was sold to external customers in New Zealand (principally to the Whakatane cartonboard mill and SCA, the tissue and hygiene products company) and [ ] was sold internally to the Kinleith mill. CHH also produced [ ] dried tonnes of slurry pulp which was supplied to the on-site paper machine at Kinleith for paper production.

75 The different characteristics of the kraft and mechanical pulp markets are further discussed in Part 3.

Chemical by-products of kraft pulp production

76 In *Decision 424*, the Commission looked briefly at the markets for the various chemical by-products of the kraft pulping process, being:

76.1 hydrochloric acid;

76.2 liquid chlorine;

76.3 sodium hypochlorite (*hypo*);

76.4 crude tall oil (*CTO*); and

76.5 crude sulphate turpentine.

77 The Commission found then that, while the merged entity would be the sole domestic producer of the relevant chemical, it would be constrained by the countervailing power of purchasers, purchasers' ability to import at comparable prices, and the merged entity's need to dispose of the by-product. All those constraints continue to apply.

78 On this occasion the Proposed Acquisition will not result in aggregation in any market for the supply of chemical by-products as the Pan Pac mill using the TMP and BCTMP processes does not produce any of those chemical by-products. Meanwhile the CHH mills continue to produce those chemicals as set out below:

	Kinleith	Tasman
CTO	Yes	Yes
Crude sulphate turpentine	Yes	Yes
Liquid chlorine	Yes	No
Hydrochloric acid	Yes	Yes
Hypo	Yes	Yes

79 Major acquirers of those by-products from CHH are:

- [ ]
- [ ]
- [ ]
- [ ]
- [ ]

80 We are told that there is unlikely to be any change to existing supply arrangements with those customers as a result of the Proposed Acquisition.

Paper

81 Oji does not have a paper manufacturing business in New Zealand and does not import any paper into New Zealand, so there will be no aggregation in the New Zealand markets which CHH supplies.

82 CHH's paper business at its Kinleith mill is integrated with its pulp production operations. Kinleith produces a range of kraft linerboards and paper products (incorporating some recycled medium) on an integrated paper machine. The Kinleith mill supplies CHH's downstream paper bag and packaging operations.

83 CHH's Penrose mill is New Zealand's only fully recycled fibre mill. Its main product is recycled medium (the interior ridges in a cardboard box) but it also produces small volumes of recycled liners for use in corrugated packaging and some corestock). The mill comprises a paper recycling plant and a single paper machine. It sold [ ] of recycled containerboard in CY2013. The Penrose mill supplies CHH's downstream packaging operations and also sells to other packaging producers.

84 We understand that in CY2013, approximately [ ] of CHH's containerboard production from Kinleith and Penrose was sold to external customers with [ ] being supplied to and used by CHH's packaging business. Of the external sales, [ ] (again with a focus on Asia, which [ ] of total external sales) in CY2013.

85 CHH's paper customers include CHH Group packaging companies, [ ].

Packaging

86 Oji does not have a packaging business in New Zealand and does not import any paper into New Zealand, so there will be no aggregation in the New Zealand markets which CHH supplies.

87 CHH's packaging operations, which form part of the Proposed Acquisition, comprise the corrugated case, specialty board and paper bag business units. The packaging business essentially takes containerboard produced at Kinleith, and recycled containerboard produced at Penrose, and converts that into various packaging products.

88 The corrugated case business unit produces a range of corrugated packaging (printed or plain) and has facilities in Auckland, Levin and Christchurch. The specialty board business produces pasted board products and other specialty products. The specialty board facility is located in Hamilton.

89 The paper bag business produces a range of paper bag products, including simple bags for industrial end uses and complex multi-wall sacks. The paper bag manufacturing facility is located in Penrose, Auckland.

90 CHH's packaging customers range from primary sector based customers packing apples, kiwifruit, meat, and dairy products to fast moving consumer goods and industrial customers using the packaging to ship their manufactured product.

Supporting businesses

91 CHH's pulp, paper and packaging operations are supported by Lodestar Logistics (*Lodestar*) and Fullcircle Recycling (*Fullcircle*). These supporting businesses also form part of the Proposed Acquisition.

92 Lodestar is an integrated logistics service provider, primarily providing services to the pulp, paper and packaging business units, but also servicing CHH's building supplies group and a number of external customers. Lodestar provides an end-to-end logistics service to CHH covering on-shore domestic transportation, logistics, warehousing activities, international shipping and international on-shore logistics management.

93 Fullcircle is a waste paper collection and processing business servicing 35 towns and cities across New Zealand. Fullcircle provides paper to both the Kinleith and Penrose mills, and any surplus is exported. We understand that in CY2013, Fullcircle collected [ ] tonnes of cardboard and paper and [ ] tonnes of plastics and other non-fibre recyclables. Of that volume, [ ] tonnes of collected cardboard were supplied to the Kinleith mill and [ ] tonnes of a mixture of cardboard and paper was supplied to the Penrose mill, providing those mills with 100% of their respective waste paper supply.

94 A diagram setting out CHH's New Zealand business operations (including the functions of each mill) is provided at ***Appendix F***.

Retail building supplies

95 Carters building supplies operates a national network of stores and frame and truss facilities supplying a wide range of materials to the construction and trade sectors in New Zealand. Carters has a network of 50 branches and 9 frame and truss facilities in New Zealand.

96 As mentioned above, the building supplies business is not part of the Proposed Acquisition.

Industries or sectors affected by the acquisition

97 The only markets in which aggregation could arguably occur in a very general sense are the pulp fibre input market, and pulp output market. However we will demonstrate in Part 3 that Pan Pac and CHH operate in separate geographic markets for acquiring pulp fibre, and separate product output markets for the mechanical pulps and kraft pulp that their mills respectively produce. Any overlap is minimal. Nothing about the Proposed Acquisition raises barriers to entry in the pulp fibre market, mechanical and kraft pulp markets, or any other market.

98 We do not consider any other markets or industry sectors to be affected, given:

98.1 CHH has no relevant forest interests (apart from the small buffer forest surrounding the Kinleith mill);

98.2 Pan Pac's lumber business is export orientated and does not supply lumber to meet New Zealand structural specifications;

98.3 the Purchaser has no paper or packaging interests in New Zealand;

98.4 Pan Pac's pulping processes do not result in the production of any chemical by-products produced by CHH; and

98.5 the supporting businesses being acquired are specific to CHHPP's operations and the Purchaser has no equivalent operations in New Zealand.

Industry trends

99 There are a number of industry trends relevant to the pulp sector:

99.1 a number of forests were planted in the early 1990s as a result of a log price spike. These trees (which are primarily Pinus Radiata) are expected to mature from 2017 resulting in a rise of supply. Estimates suggest that national wood supply will increase by 45.57% from 2012 to 2022.[2] The forests are spread throughout New Zealand and a spike of that level is not expected in the CNI, where available land was already significantly utilised as forest. However, CNI supply between 2012 and 2022 is expected to rise 37.39%;[3]

99.2 an increase in transport costs over recent years (largely driven by the rise in fuel costs) has further reduced the distances that it is economical to transport pulp logs. Potentially, increased transport costs may be set off partially by new rules allowing for maximum gross vehicle weight of 50 tonnes;

99.3 there is an increasing trend to export logs that would be considered "pulp logs" within New Zealand, to Asian markets as saw logs. This is because Asian saw mills can accept a broader range of wood for processing, as Asian consumers are willing to purchase a broader range of wood quality. This increase in demand has meant that forest owners now have an opportunity to get a higher return when exporting certain logs to a saw mill that were previously thought suitable only for chipping to make pulp;

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[2] MAF, New Zealand Wood Availability Forecasts, 1 March 2010, appendix table A5 at page 37.

[3] MAF, Central North Island Forest Industry and Wood Availability Forecasts, 1 November 2009, appendix table 12.5 at page 55.

99.4 globally, annual pulp production for 2011 was estimated at 185 million tonnes (up from 183 million tonnes for 2010). North America accounted for 37% of that global output with Europe the next largest producer. New Zealand ranks as the 18th largest pulp producer in the world, as is shown in Table 2 below. Unlike 20th ranked Australia, however, New Zealand is a net exporter of pulp, exporting 831,000 tonnes of its 1,591,000 tonnes of production for 2011 (up from 762,000 tonnes the previous year).

Table 2: Global Ranking of Top 20 Producers of Pulp

Production Ranking Pulp		*2011 '000 tonnes*
1	USA	50,315
2	China	20,430
3	Canada	18,307
4	Brazil	14,006
5	Sweden	11,624
6	Finland	10,364
7	Japan	9,021
8	Russia	7,187
9	Indonesia	6,675
10	Chile	4,896
11	India	3,932
12	Germany	2,737
13	Portugal	2,309
14	Spain	1,976
15	France	1,819
16	Austria	1,717
17	Norway	1,614
18	**New Zealand**	**1,591**
19	South Africa	1,538
20	**Australia**	**1,357**
Total global		**185,000**

Recent mergers

100 There have been no mergers of pulp businesses in the last three years.

PART 3: MARKET DEFINITION

Horizontal Aggregation

Output market – production and supply of pulp

Product market

101 Mechanical pulp (i.e. BCTMP and TMP, as produced by Pan Pac) is in a different product market to kraft pulp (as produced by the CHH mills). The Commission has concluded previously that mechanical pulps are not sufficiently close substitutes for kraft pulp in terms of strength to be included in the same product market.[4] That conclusion remains valid.

102 Kraft pulp production is a chemical process that removes the lignin (the material that binds the fibres together in wood). This process results in the production of long, strong, undamaged fibres. On the other hand, the mechanical pulp process retains the lignin and also damages the fibre resulting in a weaker, shorter fibre.

103 It is largely the presence or absence of lignin which causes papers to yellow or stay white. Photocopy paper is generally made out of softwood and hardwood kraft pulps – i.e. it is lignin free and that is why it stays white. Newsprint is generally made from mechanical pulps – i.e. it still contains the lignin and that is why it goes yellow, especially in the sun.

104 In 2012 Pan Pac upgraded its facility to produce BCTMP, a higher grade mechanical pulp. However, that upgrade has not increased the degree of substitutability of Pan Pac's pulp for kraft pulp. While the BCTMP now produced is whiter than TMP, the upgrade has not materially increased its strength.

105 In summary, the key differences between kraft and mechanical pulp are:

105.1 *Process*: kraft pulp requires significant use of chemicals, mechanical pulp requires a significant amount of electricity;

105.2 *Yield:* the chemical process destroys a lot of the pulp input fibre, meaning the yield for kraft pulps is considerably less;

105.3 *Product use:* kraft pulp products are stronger and smoother and more durable. Mechanical pulps are for lower quality products such as newsprint or light packaging. It can yellow and degrade faster than kraft pulp products;

105.4 *Price:* on average, the price of kraft pulp is approximately [ ] higher than BCTMP[5] but this figure varies considerably over time reflecting the different market forces acting on each product. For example, [

].

106 In addition to our own analysis, we have commissioned a report from Crown Research Institute, Scion outlining the relative qualities and discrete applications of kraft pulp and mechanical pulp. The report is provided as ***Appendix A.***

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[4] Commerce Commission, *Decision 213*, paragraph 79; and Commerce Commission *Decision 424*, paragraphs 68 and 71.

[5] Source: Brian McClay "Market Pulp Monthly" publications for period January 2010 to March 2014.

107 The relevant section of the Executive Summary of the Scion report states:

108 The processes used to prepare mechanical and kraft pulps, and therefore the equipment required for many of the unit operations in the mills are quite distinct. This means that pulp mills cannot easily switch their processes from producing a mechanical pulp to a kraft pulp, or vice versa, as this would require major capital investment and take a number of years to complete.

109 The different types of pulps produced in New Zealand and recovered for re-use have different properties, particularly their strength, light scattering ability, brightness, brightness stability and cleanliness. They also have different relative prices.

110 In practice, pulps, or mixtures of pulps are chosen so as to meet the required end product performance requirements and to minimise costs, so there are only very limited opportunities to substitute mechanical fibres for the higher-cost softwood kraft fibre without compromising end product performance.

111 In short, the Scion report confirms that the Commission's conclusion on the product market in *Decision 424* remain valid.

Functional market

112 In *Decision 424* the Commission concluded that the appropriate market in relation to pulp output is that of production and supply.[6] This is still the case.

Geographic market

113 Pulp, once manufactured, is easily transported as demonstrated by the fact that over half of New Zealand's total production of pulp, and almost all of the output from the Pan Pac mill, is exported. Pulp is a globally traded commodity. New Zealand is a substantial exporter of pulp; with Australia being a significant net importer of pulp (over 300,000 tonnes of 2011). On this basis, the appropriate geographic markets for both mechanical pulp and kraft pulp are national ones. This is consistent with previous Commission decisions.[7]

Input market – acquisition of pulp fibre

Product market

114 CHH and Pan Pac produce pulp using wood from Pinus Radiata.[8] The variability of this species means that pulp fibre can have varied characteristics – for example, different density depending on the region the tree is grown and the part of the tree the fibre comes from. Similarly, some logs may be unsuitable for processing at a particular mill, due to size, age, sapstain or certain extractives. But none of these differences is significant enough to suggest there are separate product markets. The appropriate input product is "pulp fibre".

Functional market

115 The functional dimension is the procurement of pulp fibre.

Geographic market

116 CHH's kraft pulp mills and Pan Pac's mechanical pulp mill use the same input pulp fibre, but, apart from a minimal amount, source that input from different and discrete catchment areas. The Commission noted in *Decision 426*:

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6 Commerce Commission, *Decision 424*, paragraph 77.

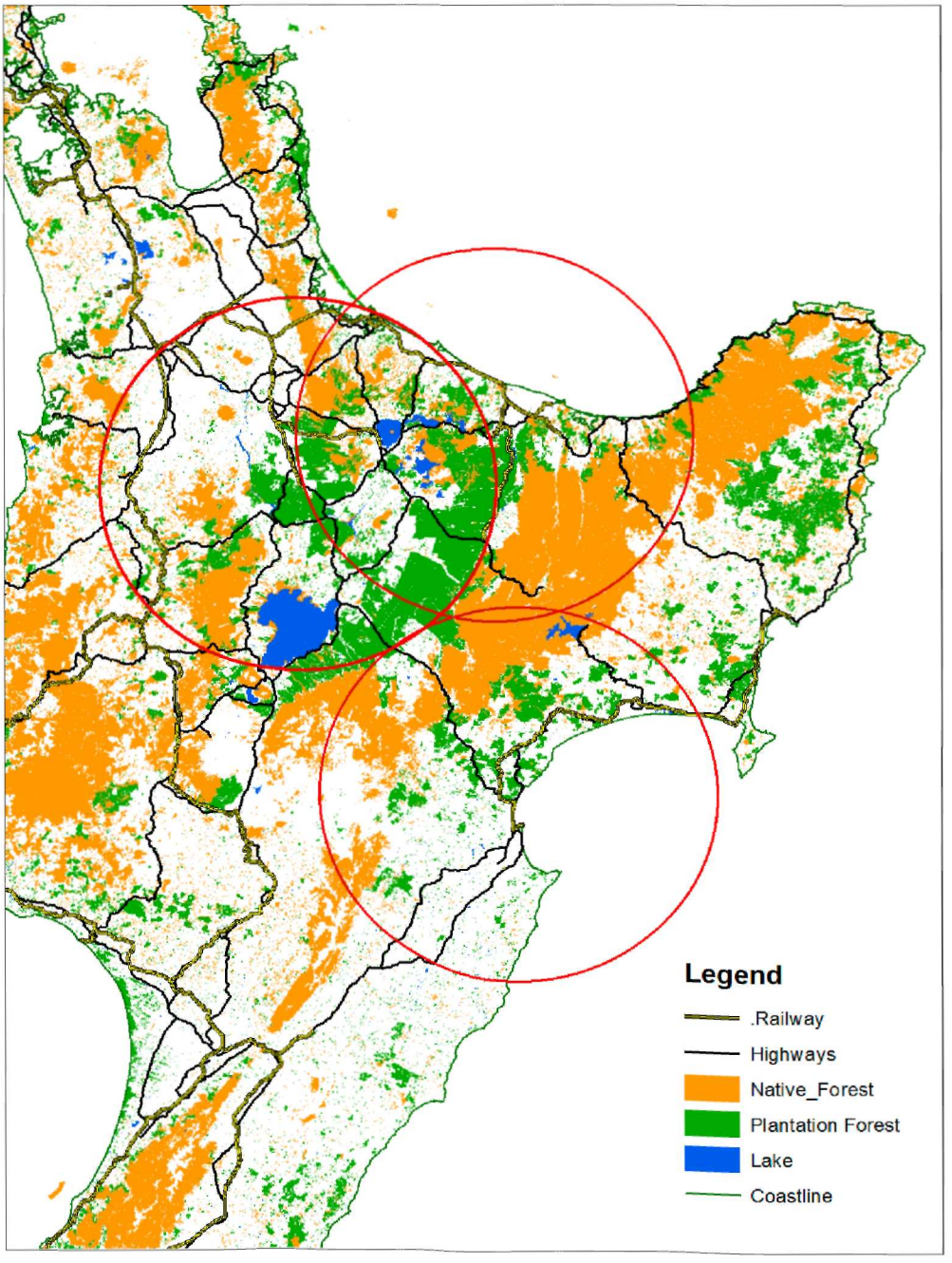
7 Commerce Commission, *Decision 424*, paragraph 78.

8 CHH previously produced a limited quantity of hardwood kraft pulp using Eucalyptus, but production was discontinued in January 2014 due to dwindling supplies of eucalyptus wood in New Zealand.

> *"A pulp log is a low value, bulky product (approximately $50m^3$), which has high relative transport costs. These characteristics suggest narrow geographic markets".*[9]

117 As we show below, this assessment is still accurate in respect of pulp logs, and is also true of chips.

118 Those factors identified by the Commission – namely, low value, bulky product and high relative transport costs – mean that the Pan Pac and CHH mills, all but for a very minimal amount, source their pulp fibre from discrete catchment areas. This is clearly shown in the map in Figure 7 of the Scion report, which is reproduced below. The respective supply catchment for the 3 mills was estimated using the average log transport for logs in New Zealand (being 86 kms).



9 Commerce Commission, *Decision 426*, paragraph 82.

119 As can be seen from the map, Pan Pac obtains most of its fibre requirements for its Napier mill from the Hawke's Bay area. Pan Pac processes logs that have been delivered direct from the forest on-site. Pulp logs are chipped and sent to the pulp mill. Saw logs are also processed on-site and the slab chips produced in processing those logs are also sent to the pulp mill.

120 In addition, some of the slab chips that Pan Pac uses are produced by other saw mills in the adjacent East Coast, Gisborne, and Wairarapa regions.

121 When Pan Pac has excess pulp fibre, it exports some high grade pulp logs (considered saw logs by Asian markets) and exports wood chips to Oji in Japan.[10]

122 Again as can be seen from the map, CHH obtains pulp fibre for its Kinleith and Tasman mills primarily from the CNI, with some additional volumes from Northland where direct rail opportunities can provide good transport synergies. CHH does obtain a negligible amount of fibre from the Hawke's Bay region, but generally only so far east as the Napier-Taupo road. As part of the Proposed Acquisition, CHH agrees to continue to supply wood chips to the Kinleith and Tasman mills.

123 The following two sections set out in detail the volumes of pulp fibre actually sourced by region by Pan Pac and CHH respectively. The information has been obtained separately and confidentially from each party, so the respective layouts of the sections differ. The time periods also differ, with the information from Pan Pac covering years ending 31 March 2012, 2013 and 2014; whereas the information from CHH covers the calendar years 2011, 2012 and 2013.

Volumes sourced by Pan Pac

124 The Pan Pac information is more disaggregated, dealing separately with:

124.1 chips supply from third parties;

124.2 pulp log supply from third parties;

124.3 log supply from Pan Pac's own forests (all Hawke's Bay).

125 For ease of reference, all the Pan Pac inputs information is combined as ***Appendix I***.

126 The Pan Pac information readily demonstrates that almost all the pulp fibre in fact used by its mill for the last 3 years was sourced from the eastern regions of the North Island, being Gisborne, Hawke's Bay and Wairarapa. [ ] the pulp fibre used by the Pan Pac mill comes from Pan Pac's own forests, all of which are situated in Hawke's Bay. In addition, wood chips are purchased from a range of third party suppliers. However, the small volumes of chips occasionally taken from [ ] are the only chips coming from CNI and those chips were not used at Pan Pac mill but exported. No chips were taken from [ ], or elsewhere in the CNI, for year ended 31 March 2014.

127 Pulp logs are also acquired from a range of third party suppliers. [

[10] [ ].

].

128 Finally, no pulp log supply from Pan Pac's own forests comes from the CNI as Pan Pac's forests are all situated in Hawkes Bay.

129 To provide a comprehensive picture of pulp fibre supply to the Pan Pac mill from all sources, in Table 3 below we have aggregated supply from the above three sources: i.e. wood chips from third party saw mills, pulp logs from third party forest owners; and pulp logs from Pan Pac's own forests for each of those 3 years. These figures are derived directly from the Pan Pac information in ***Appendix I***. Thus, the table shows, for each year, total supply of pulp fibre to the Pan Pac mill and total supply of that fibre which originated in the CNI.

130 [

].

131 [

].

132 [

]. That aggregate supply from CNI suppliers (i.e. wood chips and pulp logs) comprises a very small and insignificant proportion of total supply of pulp fibre to the Pan Pac mill.

Table 3: Pulp fibre supply to Pan Pac mill from CNI and all sources

Year ended 31 March 2012	**Supply from CNI**	**Total supply**
Wood chips from third parties	[ ]	[ ]
Pulp logs from third parties	[ ]	[ ]
Pulp logs from Pan Pac forests	[ ]	[ ]
Total	[ ]	[ ]

Year ended 31 March 2013	**Supply from CNI**	**Total supply**
Wood chips from third parties	[ ]	[ ]
Pulp logs from third parties	[ ]	[ ]
Pulp logs from Pan Pac forests	[ ]	[ ]
Total	[ ]	[ ]

Year ended 31 March 2014	**Supply from CNI**	**Total supply**
Wood chips from third parties	[ ]	[ ]
Pulp logs from third parties	[ ]	[ ]
Pulp logs from Pan Pac forests	[ ]	[ ]
Total	[ ]	[ ]

133 In addition to wood chips sent to the Pan Pac mill, Pan Pac also exports chips from the Port of Napier:

133.1 wood chips which it purchases from external suppliers; and

133.2 surplus wood chips from its pulp and chip mills.

134 The figures for those wood chips delivered to the port over the past three years are:

[

]

135 [

].

Volumes sourced by CHH

136 The information provided by CHH is set out in Table 4 below. [

]. This concentration of supply is due to the concentration of large forest holdings in the CNI and high relative transport costs for pulp fibre. [

].

137 The Kinleith and Tasman mills have a capacity of [ ] and [ ] respectively. Additional to wood fibre, the Kinleith mill consumes [ ] of recycled cardboard fibre and Penrose consumes [ ] of recycled mixed paper.

138 As Table 4 below shows, most of the fibre that CHH sources from outside the CNI comes from Northland where it sources wood chips from its saw mills as well as pulp logs.

[ ]

[

]

139 Table 4 also shows that pulp fibre that CHH sourced from Hawke's Bay for each year comprised between [ ] and [ ] of CHH's total fibre requirements. Significantly, most of the fibre sourced by CHH from Hawke's Bay in fact came from Pan Pac and was predominantly surplus pulp fibre purchased while Pan Pac was re-commissioning its pulp mill. There is also a minor amount of eucalyptus logs included in the Hawke's Bay volume. Pan Pac supplies those eucalyptus logs [ ]. There is now very little eucalyptus left in Pan Pac's forests, so that supply will cease.

140 Thus, very little volume of fibre acquired by CHH from Hawke's Bay in fact was sourced from third parties who might be adversely affected by the merger. Most comes from Pan Pac; and in the counterfactual would diminish as the Pan Pac mill operates to full

capacity and remaining stands of eucalyptus deplete. Further, as indicated elsewhere, CHH will continue to provide wood chips to the mills post acquisition.

141 As regards the Southern North Island (i.e. Manawatu/Wairarapa), we understand that in the years from 2009 to 2011 CHH also acquired fibre from a regular CHH contractor who was undertaking tree felling work on an estate in the Wairarapa. The volumes amounted to around [ ] in each of 2009 and 2010, reducing to [ ] in 2011 (in each case less than [ ] of CHH's fibre purchases). CHH did not acquire anything from the contractor in 2012. CHH continues to get small volumes from some of its regular contractor suppliers operating in the Southern North Island. The majority of this volume is from a logging contractor who also operates a significant transport fleet (CHH assumes that the sale of fibre is not the key driver for those truck trips, but rather the contractor needs to relocate those trucks to the CNI for other reasons).

142 Given the minimal volumes involved, and the isolated nature of the transactions, CHH cannot be said to compete for fibre in either Hawkes Bay or Southern North Island in any meaningful way.

143 In *Decision 468* the Commission took account of the fact that CHH occasionally sought supply from within the Hawke's Bay area, but was not willing to include Hawke's Bay in the geographic market for supply of pulp logs in the CNI.[11]

144 Further, [ ] of CHH total fibre requirements is sourced pursuant to the long-term contracts containing predetermined pricing mechanisms. These suppliers will not be affected by the merger.

Impact of transport costs

145 A key reason CHH limits the amount of pulp fibre it sources from outside the CNI, and Pan Pac mostly avoids supply from within the CNI, is transport cost. As the Commission noted in *Decision 426*, a pulp log is a low value, bulky product; and transport costs are high relative to the value of the cargo. Therefore, the distance that pulp fibre must travel impacts significantly on the real price of pulp fibre.

146 As the Scion report observes, the real deterrent to transporting pulp logs long distances is the cost of transport relative to the value of pulp logs. It gives the example that a pulp log ascribed a volume of $50/tonne will incur a cost of $15-$16 per tonne to transport 75 kilometres, representing 30-32% of the delivered cost of the log. By contrast, a S1 saw log selling at $117/tonne would incur the same transport cost, but representing only 13-14% of the delivered cost of the log.

147 [ ]

147.1 Pan Pac's actual average price paid for pulp logs in April 2014 was [ ]. Pan Pac's internal model for estimated transport costs estimates a cost of [ ] per tonne to transport logs 75 kilometres and [ ] per tonne to transport logs 100 kilometres. The Pan Pac model, containing estimates for different distances, is provided at ***Appendix L***.

147.2 CHH's actual average price paid for pulp logs in the first quarter, 2014 was [ ]. CHH's internal model for estimated transport costs estimates a cost of [ ]

[11] Commerce Commission, *Decision 468*, paragraphs 93 and 94.

per tonne to transport logs 75 kilometres and [ ] per tonne to transport logs 100 kilometres. The CHH model is provided at ***Appendix M***.

147.3 The CHH model and estimated prices do not take into account pulp logs transported by rail. Approximately [ ] of logs transported by CHH from Northland came by rail, with an approximate cost of [ ] per tonne for the rail transport.

148 [

].

149 The difference in average transport costs for CHH and Pan Pac may be due to the nature of the roads used in the different regions. In particular:

149.1 CHH is able to make substantial use of local forest roads, which are designed for logging trucks, straight, free of highway tolls, and only used by other trucks (not general traffic);

149.2 Pan Pac, by contrast, transports its logs in part on highways, and using roads in the Hawkes Bay which are inferior for logging trucks.

150 In *Decision 424* and *Decision 426* the Commission adopted relatively narrow geographic market definitions – i.e. respectively, purchase of pulp fibre in the CNI, and supply of pulp logs in the CNI (excluding Auckland and Hawkes Bay) – on the basis that transport costs relative to value of pulp logs or chips make supply from further away occasional and marginal. While high value saw logs may travel long distances to the saw mill, pulp logs and other pulp fibre does not.

151 In fact, the value ascribed to a pulp log by the Commission in *Decision 424* and *Decision 426* (i.e. approximately \$40 - 50m^3 and \$50 m^3 respectively) has changed little since then. The Scion report notes that actual pulp log prices for the CNI and Hawkes Bay regions for March 2014 were \$48 to \$52 per tonne delivered to the mill. Volume weighted, the average pulp log price was \$49 per green tonne, which is down slightly since 2001 (being the date of *Decisions 424 and 426*). In real terms, the average pulp log price has reduced further.

152 Since 2001 however, transports costs have increased significantly. As discussed, Pan Pac estimates 2014 transport costs of [ ] per tonne, per 100 kilometres and CHH estimates [ ]. The Scion report's estimate of [ ] per 75 kilometres scales to [ ] per tonne, per 100 kilometres.

153 The table below shows the relative increase in transport costs compared to the price of pulp logs, comparing the two 2014 estimates with the Commission's estimate in 2001's *Decision 424* (in each case taking the middle of the estimated range, where no average is available). In its *Decision 426* the Commission estimated an average 2001 pulp log price of \$50, but did not give an average transport cost per kilometre (rather, the Commission found different "on-highway" and "cart" transport costs).

Table 5: Cost of transport relative to pulp logs

	Scion 2014 BOP + CNI + Gisb + Napier figures	Scion / Agrifax 2014 NZ average	Pan Pac 2014 figures	CHH 2014 figures	424: 2001 NZCC estimate
Pulp log price (per tonne)	$48 - $52 (March estimate)	$49 (March estimate)	[ ]	[ ]	$40 - $50
Estimated transport cost (per tonne, per 100km)	$20.67	$20.67	[ ]	[ ]	$13 - $14
Transport cost out of log price	41.34%	42.18%	[ ]	[ ]	30%
Difference to 2001 estimate	+11.34%	+12.18%	[ ]	[ ]	-

154 The key reasons for the increase in costs of transport since 2001 are increases in the price of fuel and labour. As the Scion report outlines, diesel prices have increased from approximately $0.70 to $0.72 per litre to their current price of approximately $1.42 per litre. Fuel and oil costs are the largest cost in operating a truck, at around 30% of the total cost.

155 Since 2001, the introduction of High Productivity Motor Vehicle rules and the introduction of new vehicles may have reduced the cost of transport relative to the value of pulp logs slightly but, as the Scion report suggests, increasing fuel and other costs remain. Some of that reduction in transport cost will have been captured in the 2014 transport costs discussed above.

156 So, since the Commission's 2001 analysis the price of pulp logs has not changed substantially but the price of transport has increased. Transport costs now represent approximately [ ] – [ ] of the value of a pulp log. Therefore, as the Scion map at paragraph 118 above demonstrates, the Commission's previous conclusion of regional geographic markets for pulp logs remains valid.

157 Further, the value of logs in the export market has risen considerably over recent years, with domestic purchasers facing significant competition for industrial and pulp logs (capable of saw milling in Asian processing facilities) from export customers. This has made procuring pulp logs from areas that are geographically close to ports more expensive. In Hawke's Bay, the proximity of the Napier Port ensures Pan Pac faces strong competition for its pulp fibre.

Different prices in different markets

158 The pricing data outlined above and in the Scion report show that different prices prevail in the different markets in which the CHH and Pan Pac mills respectively operate as follows:

158.1 Scion estimates an average pulp log price for March 2014 of $48 to $52 per tonne across the whole of CNI, Hawkes Bay and Gisborne;

158.2 Scion and Agrifax estimate an average pulp log price across New Zealand of $49 per tonne;

158.3 [ ]

158.4 [ ].

159 The estimated transport costs are similarly varied:

159.1 Scion estimates transport costs of $20 - $21.33 per 100km;

159.2 [ ]

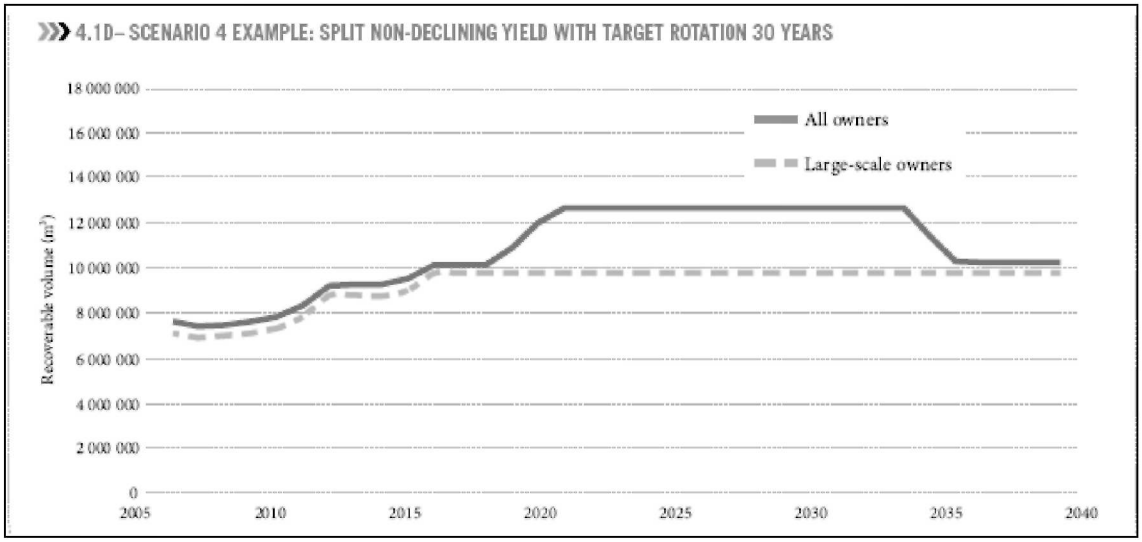
159.3 [ ].

160 These differences in log prices and transport costs are consistent with the Commission's conclusion in 2001– namely, the mills in the CNI and Hawkes Bay operate in separate markets for the pulp fibre they acquire to process.

Predicted future fibre supply in the CNI and Hawkes Bay

161 The MAF Wood Availability Forecasts which MAF (now MPI) issues on a rolling basis predict wood supply over the medium to long term. The most recent MAF report for the CNI was produced in 2009 (attached as ***Appendix K***) and forecasts a significant increase in wood availability in the CNI over the next 10 years. The following chart is reproduced from the MAF report:

Expected CNI Wood Availability, MAF Scenario 4[12]



162 The chart shows expected total wood availability in the CNI increasing from 9.25 million m^3 to 12.7 million m^3 over the decade from 2012 to 2022; an increase of 3.45 million m^3 or 37.39%. Of this increase, 1.1 million m^3 will be pulp grade logs. Thus, the availability of pulp fibre is expected to increase approximately in line with overall wood availability, resulting in a significant expected increase in pulp fibre in the CNI.

163 Similarly, MAF expects wood availability elsewhere to increase over the decade from 2012 to 2022:

163.1 in Northland by 0.87 million m^3 or 23.85% from 3.6 million m^3 to 4.47 million m^3. Of this increase 0.13 to 0.17 million m^3 will be pulp grade logs;[13] and

163.2 in the Auckland area (which CHH includes in CNI for internal purposes) by 0.4 million m^3 or 45.45% from 0.81 million m^3 to 1.2 million m^3. Of this increase 0.06 to 0.08 million m^3 will be pulp grade logs.[14]

164 Given the significant increase in wood availability across all its current catchment areas, it is unlikely that CHH would begin competing for fibre supply in Hawke's Bay or elsewhere.

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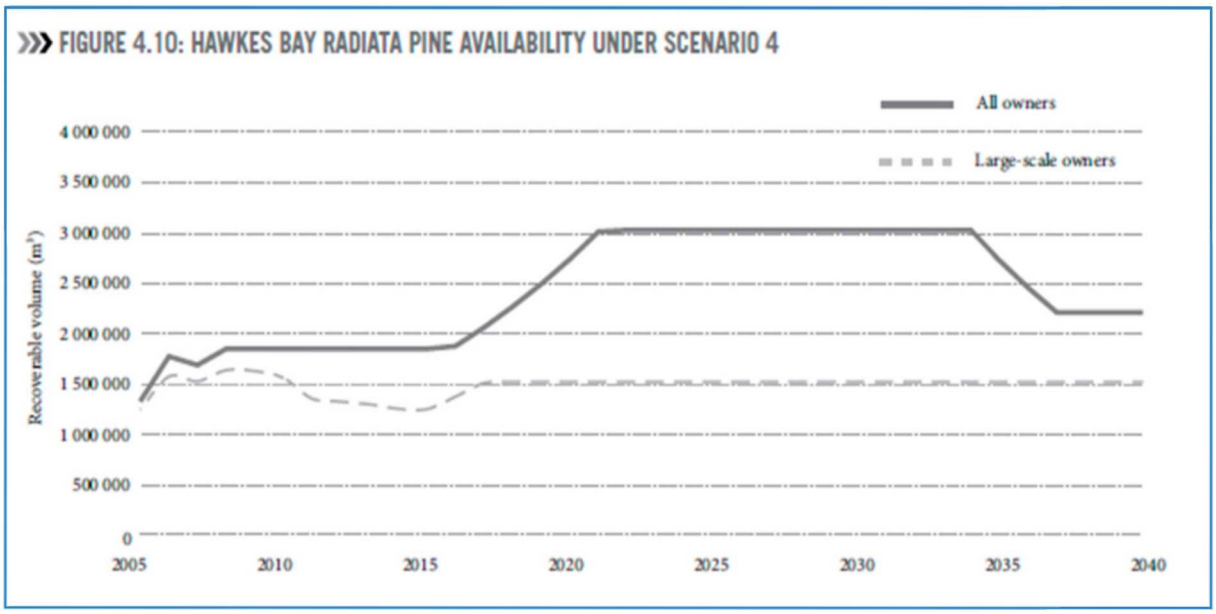
12 MAF, Central North Island Forest Industry and Wood Availability Forecasts, 1 November 2009, page 19.

13 MAF, Northland Forest Industry and Wood Availability Forecasts, 1 February 2009, appendix table 5 at page 41.

14 MAF, Auckland Forest Industry and Wood Availability Forecasts, 1 April 2009, appendix table 5 at page 36.

165 Wood availability in Hawke's bay is also expected to increase over the decade from 2012 to 2022:

Expected Hawke's Bay Wood Availability, MAF Scenario 4[15]



166 The chart shows expected total wood availability in Hawke's Bay increasing from 1.84 million m^3 to 3.02 million m^3, an increase of 1.18 million m^3 or 64.29%. Of this volume, 0.28 to 0.29 million m^3 will be pulp grade logs. This means that Pan Pac will continue to have sufficient supply to service its pulp mill and there is no reason to reach into the CNI.[16] If supply in Hawkes Bay were not sufficient, there are other regions of the North Island - East Coast, Gisborne and Wairarapa – which could supply Pan Pac as they currently do.

167 As the Scion report notes, the MAF (MPI) figures were prediction of wood available for harvest, made in 2009. When these predicted figures are compared to current estimates of actual harvested volumes there is a difference, with some forest harvest brought forward to take advantage of current good log export prices. But regardless of whether this current early harvest trend continues, wood availability in the CNI and elsewhere will increase over time (2014 to 2020) and could remain at significantly increased levels beyond 2020.

Price setting and geographic margins

168 Marginal competition (i.e. at the geographic margin) has no demonstrable impact on the price paid for pulp fibre sourced closer to the mill. The pulp fibre input market is not a market where marginal competition impacts the price for all suppliers (say, as in the price of raw milk). Rather, pulp fibre prices paid to all suppliers are affected by export parity and are generally based on quarterly price lists, set by formula, that make adjustments for transport costs.

169 Specifically, the prices at which Pan Pac acquires pulp fibre [

[15] MAF, Hawkes Bay Forest Industry and Wood Availability Forecasts, 1 September 2008, page 14.

] (Pan Pac must pay at least enough so that the forest owner doesn't leave the pulp fibre on the forest floor). [

].

170 CHH's Pricing Schedule (as described in further detail below at paragraphs 180 - 181) is set by reference to quarterly market demand (based on market benchmarks), but with adjustments to reflect the distance of the logs from the nearest export port and/or other mills, with these prices changing in 50km increments.

171 For the reasons described above we submit that the Commission's previous analysis and conclusion that CHH and Pan Pac operate as buyers in separate geographic markets remains correct - as such, there will be no horizontal aggregation in the input market for pulp fibre. In any event, as described above, minimal overlap between the parties, and the fact that pricing is set by reference to export markets and/or costs to supply, the acquisition would certainly not be sufficient to result in prices being depressed "to a level below the competitive price for a significant period of time such that ... (some) suppliers no longer cover their supply costs and so withdraw supply ... from the market.[17]

Vertical integration

172 The acquisition will see Oji integrate into the downstream markets for paper and packaging through CHH. Oji already holds numerous paper and packaging assets globally, but currently does not have any involvement in these markets in New Zealand. The New Zealand paper and packaging businesses of CHH are currently supplied by CHH's upstream operations. Post-acquisition, those paper and packaging businesses will be owned by Oji, and will be supplied by Oji's upstream operations. Given the pre-existing vertical integration of the CHH business being acquired, the Proposed Acquisition does not give rise to any *increased* vertical integration.

[17] Commerce Commission, Mergers and Acquisitions Guidelines, July 2013 at 4.2.

PART 4: COUNTERFACTUAL

173 [

].

174 A number of overseas firms (like Oji) already have substantial interests in the New Zealand forest products industry, holding large areas of plantation forests or wood processing assets or both. They include Ernslaw One, which as the fourth largest forestry owner in New Zealand also owns and operates the WPI pulp mill at Karioi and the Tangawa's saw mill. The major shareholder in Ernslaw One is a Malaysian interest.

175 Any acquisition of CHHPP by a firm already having extensive interests or involvement in the New Zealand forest products industry would raise similar (but not identical) competition considerations to the Proposed Acquisition by the Purchaser.

176 In the meantime, Rank will continue to be the ultimate parent company of the group that owns the CHH pulp, paper and packaging business and expects to continue to operate the business in much the same way as it does today.

PART 5: COMPETITION ANALYSIS

No aggregation as separate geographic markets

177 Having regard to the relatively narrow geographic market for pulp logs or fibre previously used by the Commission in *Decisions 424 and 426*, the Proposed Acquisition results in *no* horizontal aggregation in either the CNI or Hawkes Bay markets; and any increased vertical integration has no detrimental competitive effect in either of those markets.

178 All of the information provided in this application indicates that those separate geographic markets should be retained. In particular, actual cost of transport relative to value of pulp logs has increased significantly since the date of *Decisions 424* and *426*. The Pan Pac and CHH mills source very little pulp fibre from the others' catchment. And as the map from the Scion report demonstrates, those catchments may be contiguous but mostly do not overlap.

CHH's supply from Pan Pac's catchment competitively insignificant

179 While CHH sources a small amount of fibre from Hawke's Bay, it cannot be said to currently "compete" for fibre there. Rather, [

]:

179.1 [

];

179.2 [

];

179.3 [

];

180 CHH's Pricing Schedules for un-contracted fibre show the prices it will pay for various grades of fibre from different geographic areas. The minimal un-contracted Hawke's Bay fibre purchases led to CHH's decision in 2010 to remove Hawke's Bay Pinus Radiata fibre from its quarterly Pricing Schedules. This further demonstrates the

absence of competition between CHH and Pan Pac for Hawke's Bay fibre. The 2014 first quarter pricing schedule is attached as ***Appendix J***.

181 Accordingly, for the minimal amount of pulp fibre that CHH acquires from the Hawke's Bay area, there is no pricing competition between it and Pan Pac. Therefore, the Proposed Acquisition will not have any effect on prices paid to forest owners for fibre in the CNI or Hawke's Bay or affect the ability of third party suppliers to sell to export customers.

Constraints on merged entity

182 In any case, substantial constraints would operate on the merged entity should it seek to drive down the price of pulp fibre post-acquisition. In particular:

182.1 there is an increasing trend to export higher grade pulp logs to Asian markets (where that same log is considered capable of saw milling). Thus, forest owners now have the alternative to export some of the pulp logs;

182.2 there is also the possibility of wood chipping for export as an alternative for pulp fibre suppliers. Export of wood chipped pulp fibre by third party suppliers in the CNI has not been common due to the demand of the domestic market. Hence chip exports through Tauranga have been minimal since 2005. However, as the Scion report indicates, chip exports through Napier have averaged 258,000 tonnes per annum over the last 9 years. New Zealand's total chip exports have averaged 736,000 tonnes per annum since 1980. Thus, the option for forestry companies to export wood chips will act as a constraint on the merged entity. In *Decision 426* the Commission found that "[t]here are no significant barriers to entering **[**the wood chipping**]** market".[18] Therefore, wood chip exports provide another export option for pulp fibre, even for smaller suppliers who could aggregate chips;

182.3 as both the MAF Wood Availability Forecasts and the Scion report demonstrate, there is a clear trend for increasing forest harvest in the CNI and Hawkes Bay (as well as elsewhere) for the next 10 to 15 years, with pulp logs being 20 to 25% of total forest harvest;

182.4 forest operators can delay cutting to control supply, if they considered it necessary to exert countervailing power. Similarly, forest owners face a continued consideration of whether to convert forestry land to other uses; and

182.5 two mechanical pulp mills, Norske and Winstone will continue to require pulp fibre (as they do today), providing alternative domestic purchasers for pulp fibre suppliers.

Barriers to Entry/Expansion

183 The Proposed Acquisition does nothing to raise barriers to entry. Barriers to entry for pulp production are already high:

183.1 a pulp mill requires significant capital investment;

183.2 it takes time to build a pulp mill;

---

[18] Commerce Commission, *Decision 426*, paragraph 201.

183.3 pulp prices are vulnerable to currency levels and global commodity fluctuations and so income is difficult to predict; and

183.4 transport costs continue to limit pulp fibre supply to a relatively narrow geographic area.

184 The New Zealand pulp and paper industry is principally driven by exports, with direct exports of pulp, paper and board accounting for approximately half of all pulp production in New Zealand. Products for pulp and paper tend to be demanded for secondary uses, such as packaging to put meat in and export it, not for their own value of just having packaging. Trends within these end uses influence demand. Put simply, pulp and paper manufacturers operate in highly competitive global markets where prices fluctuate. New Zealand, as a softwood pulp producer must compete with softwood pulps produced in countries such as USA, Canada, Chile and the Scandinavian countries (all of which rank above New Zealand for production in the chart in Table 2).

185 Assuming global demand and commodity prices were sufficient to attract a new pulp mill, the most important factor for a new entrant would be assured supply of pulp fibre. WoodCo has proposed in its Strategic Action Plan[19] that the increased flow of wood New Zealand will experience in the coming decade should be used to:

> 2.3 *Increase high value fibre product manufacturing and integrate new co-product value streams – biochemical, biofuel and other bioenergy options.*

186 The Plan postulated as a specific deliverable:

> *Increase kraft pulp capacity by 450,000 tpa by 2022.*

187 The plan anticipates that such increased kraft pulping capacity will be "industry/partner funded", but gives no indication as to where or how that increased capacity might come about.

188 One possibility would be establishment of a new mill – similar in capacity to Kinleith – on a greenfields site. If such a greenfields development was to occur – and none has been proposed – the new entrant would likely build its mill in an area where increasing wood flow will be the greatest and supply is presently unencumbered. I.e. in that scenario, nothing about the merged entity continuing to draw wood from the CNI and Hawke's Bay would raise barriers for such new entrant.

189 As is suggested in the Scion report, however, the more efficient alternative might be to build a world-scale mill on a brownfield site in the CNI, which would likely require the closure of the existing mills at both Kinleith and Kawerau. Again, the Proposed Acquisition has no impact on that scenario as it would obviously require the involvement of the erstwhile owner of those mills (whoever that is).

190 Similarly, the Proposed Acquisition will not deter expansion by existing pulp producers. For pulp production, expansion from mechanical pulp to kraft pulp or vice versa is effectively as capital intensive as greenfields entry. The effective combining of the existing CHH and Pan Pac pulping operations would not affect any other existing market participant.

---

[19] New Zealand Forest Products and Wood Products Strategic Action Plan, page 14, available at http://www.woodco.org.nz/images/stories/pdfs/ForestWood_Strategic_Action_Plan.pdf.

191 In summary, this Proposed Acquisition does not substantially lessen competition by increasing barriers to entry or expansion. What it will do is expand the opportunities in global markets for CHHPP's products and enhance CHHPP's capabilities through access to Oji's research and development programme. As such, it will enhance the ability of many participants in New Zealand's forestry industry – i.e. forest owners, saw millers and employees of CHHPP and Pan Pac - to participate in highly competitive global markets.

PART 6: FURTHER INFORMATION AND SUPPORTING DOCUMENTATION

192 Please find below, contact details for relevant market participants:

Name of company	Contact details	Relevant contact person
Competitors		
Customers (Pulp and Paper Containerboard)		
CHH Packaging NZ	[ ]	[ ]
Amcor Kiwi Packaging	[ ]	[ ]
Unifrutti Services Inc	[ ]	[ ]
CHH Corrugated Packaging Aust	[ ]	[ ]
ABBE Corrugated Pty ltd	[ ]	[ ]
Customers (Pulp)		
Whakatane Mill Limited	[ ]	[ ]
Moorim Paper Co Ltd	[ ]	[ ]
SCA Hygiene Australasia Limited	[	[

	]	]
International Paper & Sun Cartonboard Co Ltd	[ ]	[ ]
James Hardie	[ ] [ ] [ ]	[ ]
Suppliers		
Kaingaroa Timberlands	[ ]	[ ]
Taumata Plantations Ltd	[ ]	[ ]
Matariki Forests	[ ]	[ ]
Tiaki Plantations Company	[ ]	[ ]
OTPP NZ Forest Investments Ltd	[ ]	[ ]
Trade associations		
Pulp and Paper Products Council (members of the World Market Pulp Forum)	[ ]	[ ]
Any other relevant market participants or interested parties		

The most recent annual report for Oji is available at http://www.ojiholdings.co.jp/english/ir/annual/index.html.

193 As a privately held company, CHH does not publish an annual report.

194 Management accounts for the CHH businesses being divested are attached in ***Appendix G***.

PART 7: CONFIDENTIALITY

The fact of the Proposed Acquisition

195 Confidentiality is not required for the fact of the Proposed Acquisition which has already been publically announced in New Zealand and Japan.

Specific information contained in or attached to the notice

196 Confidentiality is requested for all the information deleted from the "public version" of this notice (which will be delivered subsequently) on the grounds that the information is commercially sensitive to the Applicant and/or CHH. Disclosure of such information would be likely to unreasonably prejudice the commercial position of the Purchaser or CHH in terms of section 9(2)(b) of the Official Information Act 1982.

197 We also propose to remove ***Appendix H*** from the public version, since Copyright will attach to this article.

This Notice is given by the Purchaser.

The Purchaser hereby confirms that:

- all information specified by the Commission has been supplied;
- if information has not been supplied, reasons have been included as to why the information has not been supplied;
- all information known to Oji which is relevant to the consideration and determination of this application has been supplied; and
- all information supplied is correct as at the date of this application.

The Purchaser undertakes to immediately advise the Commission of any material change in circumstances to the application.

Dated this 15th day of May 2014

_____

Gemmei Shimamura
I am the Director, Oji Oceania Management (NZ) Limited and am duly authorised to make this application.

APPENDIX A: SCION REPORT [PUBLIC VERSION]

Report for Chapman Tripp:
Wood Supply
Pulp Production, Properties and Applications

Client Report (Public Version)

Peter Hall and Ian Suckling May 2014

www.scionresearch.com

REPORT INFORMATION SHEET

REPORT TITLE	REPORT FOR CHAPMAN TRIPP: WOOD SUPPLY; PULP PRODUCTION, PROPERTIES AND APPLICATIONS
AUTHORS	PETER HALL AND IAN SUCKLING, SCION
CLIENT	CHAPMAN TRIPP
CLIENT CONTRACT NO:	
SIDNEY OUTPUT NUMBER	53546
SIGNED OFF BY	IAN SUCKLING
DATE	APRIL 2014
CONFIDENTIALITY REQUIREMENT	CONFIDENTIAL (FOR CLIENT USE ONLY)
INTELLECTUAL PROPERTY	

Disclaimer

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Neither Scion, nor any of its employees, officers, contractors, agents or other persons acting on its behalf or under its control accepts any responsibility or liability in respect of any information or opinions provided in this Report.

EXECUTIVE SUMMARY

This report is presented in two sections; the first dealing with wood supply and the second covering the preparation, properties and uses of differing types of pulp fibre. The key points are:

Wood Supply

- Wood supply (wood available for harvest) nationally and for all the regions assessed is increasing for the period 2013 through to around 2030.
- For the areas assessed (and nationally) current harvest levels are ahead of the MAF wood supply forecasts published in 2009.
- The wood supply catchments for the Pan Pac and CHHPP mills are largely distinct and separate.
- National average pulp log prices have remained stable at ~$50 to $51 per green tonne for the last 3 years. Quarterly average pulp log prices in 2001 ranged from $37 to $49 per tonne. Broadly in line with the $40 to $50 per tonne used in the 2001 Commerce Commission decision.
- Chip supply from solid wood processing is a significant part of the supply to the pulp mills. This supply is dependent on the health of the sawmilling industry. Pan Pac has a large sawmill integrated with its pulp mill which supplies around 30 to 35% of its in-feed demand. The CNI has 3 large sawmills (and a number of small ones) that supply sawmill chip to CHHPP. There is an abundant supply of saw logs for these mills.
- Currently pulp wood (logs and sawmill chip) is imported into the CNI from Northland and Taranaki. Sawmill chip is brought to the Pan Pac mill from the Juken NZ mills in Gisborne.
- Log transport costs have increased substantially since 2001 driven largely by increasing fuel and labour costs. Transport cost is a significant proportion (30 to 32%) of delivered wood fibre costs. The impact of the HPMV rules on the potential wood supply catchment is likely to be minimal as it only partly offsets the increase due to fuel price increases and due to the geographic distribution of the forests and highways around each mill.
- Pulp mill profitability is highly sensitive to wood price and increasing transport distance increases wood price, hence pulp mills look for wood from as close to the mill as possible.
- Chip exports from New Zealand are highly variable year to year. This is also the case for chip exports via the port of Napier (currently ~150,000 tonnes per annum). Chip exports via the Port of Tauranga are possible – but currently at very low levels.

Pulp Preparation, Properties and Applications

- New Zealand is a significant global pulp manufacturer, ranking as the 18th largest pulp producer in the world. Pulp manufacture in New Zealand is based on sustainably-managed plantation *Pinus radiata* forests.
- The New Zealand pulp and paper industry is principally driven by exports, with direct exports of pulp, paper and board accounting for approximately half of all the pulp produced. There are also significant imports of pulp and paper products and exports of waste paper.

- The processes used to prepare mechanical and kraft pulps, and therefore the equipment required for many of the unit operations in the mills are quite distinct. This means that pulp mills cannot easily switch their processes from producing a mechanical pulp to a kraft pulp, or vice versa, as this would require major capital investment and take a number of years to complete.
- The different types of pulps produced in New Zealand and recovered for re-use have different properties, particularly their strength, light scattering ability, brightness, brightness stability and cleanliness. They also have different relative prices.
- In practice, pulps, or mixtures of pulps are chosen so as to meet the required end product performance requirements and to minimise costs, so there are only very limited opportunities to substitute mechanical fibres for the higher-cost softwood kraft fibre without compromising end product performance.

REPORT FOR CHAPMAN TRIPP: WOOD SUPPLY; PULP PRODUCTION, PROPERTIES & APPLICATIONS

Peter Hall and Ian Suckling
Scion, Private Bag 3020,Rotorua
May 2014

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Introduction

New Zealand Forest Research Institute Limited (trading as Scion) is a company registered under the Companies Act 1993. Our principal activity is to conduct research in accordance with the purpose and principles specified in Sections 4 and 5 of the Crown Research Institutes Act 1992.

Scion is a commercially focused science and technology company, delivering solutions to both commercial and Crown clients. The principal research is located in Rotorua.

Scion's strategy focuses on delivering science and technologies in the following key areas:

- Commercial forestry
- Wood products and processing
- Wood fibre, pulp, biopolymer, packaging and biochemical industries
- Risk and adaptation
- Licence to operate
- Bioenergy

Scion's Statement of Corporate Intent maps out the strategic framework for Scion to achieve outcomes aligned to its Statement of Core Purpose, and the New Zealand Government's overarching objective for Crown Research Institutes to lead the country's economic transformation.

Scion's science and commercial focus is strongly aligned with the opportunities being presented locally, nationally and globally, and when brought together, will continue to enable Scion to provide leadership on issues of local, national and global significance. That Core Purpose includes as Outcome 1:

> *"Increase the value and productivity of New Zealand forestry, wood products and wood-derived materials and other biomaterial sectors to the New Zealand economy."*

Scion has been contracted to provide expert advice to Chapman Tripp on aspects of the proposed acquisition by Oji Management (NZ) Limited of the pulp, paper and packaging business of Carter Holt Harvey Limited.

In particular, Scion was asked to review and report on the application to the Commerce Commission seeking clearance of the proposed acquisition, focussing particularly on (i) wood supply implications and (ii) the production, properties and applications of wood pulps produced and used in New Zealand.

This report on wood supply includes:

1. Graphs and tables showing present and future fibre supply in the Central North Island (CNI) and Hawkes Bay (HB) areas derived from Ministry of Primary Industries (MPI) National Exotic Forest Description (NEFD) and regional wood supply forecasts.
2. Information on wood supply in the south-eastern North Island, East Coast region and Northland / Auckland wood supply region.

3. Maps showing the location of forests, relevant processing sites, roads and working circles based on average log transport distances.
4. The potential impact of High Productivity Motor Vehicles (HPMV) 50MAX rules on transport costs.

The report on pulp production, properties and applications includes:

1. A brief overview of the global and New Zealand pulp and paper industries.
2. A description of the different mechanical and kraft pulping processes used in New Zealand, including a brief discussion of semi-chemical pulping, and recycled fibre.
3. A summary of the properties of the resultant fibres.
4. A summary of the main applications for each of the fibre types.

The qualifications and experience of Scion's staff involved in the preparation of this report are set out in the Addendum to this report.

Part One: Wood Supply

Preliminary assumptions

Pulp log prices – prices for the Bay of Plenty / CNI and Gisborne / Napier regions for March 2014 are $48 to $52 per tonne (green) delivered to mill. The New Zealand average pulp log price (volume weighted) was $49 per green tonne.[1] This has not changed substantially since the Commerce Commission Decision 426 in 2001 ($40 to $50 / tonne).

Catchment areas – the locations of the log supply catchments for the Pan Pac and CHH mills are covered in detail below. The existing mills were established based on finding their feedstocks from different resource bases, rather than competing for it. Historically, Pan Pac took wood from the CNI region (southern Kaingaroa Forest) but this was an interim supply until the Hawkes Bay forests matured.

Log transport costs – the cost of pulp log transport is not particularly high relative to other log products or other bulk commodity products. Trucks carrying logs are generally able to reach their maximum weight limit, rather than being volume limited. Thus the cost of log transport is driven by the distance carried and is independent of the log type. The lower value of pulp logs (~$50 / tonne) relative to other logs (~$117 / tonne for S1 sawlogs) means that the cost of transport is a much greater percentage of the delivered cost for pulp logs. Pulp logs could be described as being more sensitive to the cost of transport (and therefore transport distance) on this basis. For example, for pulp logs selling at $50 per tonne, at a 75 km transport distance the transport cost is likely to be $15 to $16 per tonne, or 30 to 32% of the delivered price. At a 100 km transport distance log transport will cost $20 to $21 per tonne, or 41% of the delivered price. In contrast, for a S1 sawlog selling at $117 per tonne the transport cost for a 75 km transport would remain the same (~$15 to $16 per tonne), but this would only constitute 13 to 14% of the delivered cost.

Note: returns to growers from pulp logs are lower than the full cost of production in many cases, if growing costs are included. For logs off steep terrain, logging costs can be $32 to $36 per tonne and transport costs another $10 to $15, for a total of $42 to $51 per tonne. Growing costs can be an additional $20 to $25 per tonne. Growers make their profit from the higher value sawlogs.

Predicted pulp wood fibre supply – the use of the MPI wood availability forecasts is the logical approach to predicting wood supply by region. These forecasts are prepared for the Ministry of Primary Industries (MPI) using the MPI National Exotic Forest Description and yield tables.

Pulp wood supply – CNI and Hawkes Bay

Estimates for wood availability (total and pulp wood) have been derived and are available in a number of Ministry of Agriculture and Forestry / Ministry of Primary Industries publications and datasets. The key reports are the Central North Island (CNI) and Hawkes Bay (HB) Forest Industry

[1] Agrifax 2014. Log price database.
Agrifax 2014. Regional log price cost report.

and Wood Availability Forecasts (MAF, 2009, 2008) and the MPI National Exotic Forest Description (NEFD) (MPI, 2014).

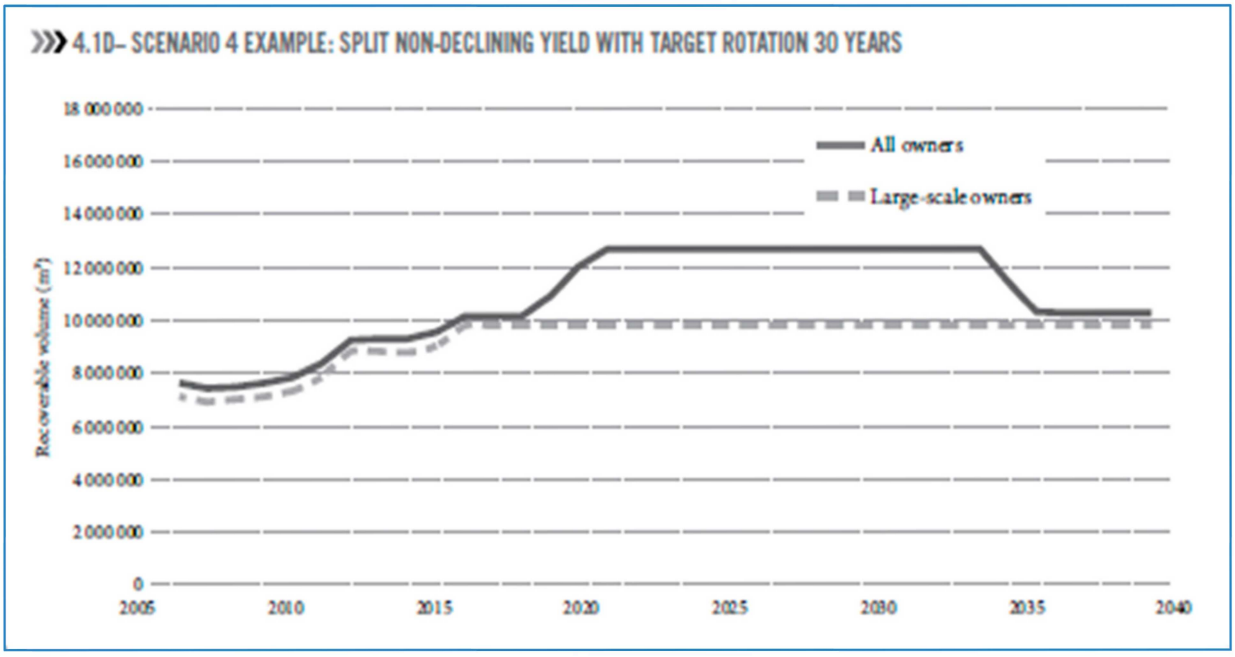
In its 2007 to 2009 wood supply forecasts (MAF 2007 & 2009) the then Ministry of Agriculture and Forestry (MAF) used a split non-declining yield to estimate future harvest levels.[2] This allows the harvest to increase, but smooths out the peak and reduces the size of the post 2030 reduction in harvested log volume. These are estimates of long term future harvest volumes. Figure 1 shows the total forest harvest for the CNI estimated by MAF in 2009. Figure 2 shows the same approach, but used in the Hawkes Bay Region.

The MAF (now MPI) wood availability forecasts also provide data tables on the sawlog / pulp log split. These data for pulp logs have been converted into a graph (Figure 3). The underlying data are presented in Appendix 2.

For both regions the pulp log supply increases over time from current levels. In the CNI the increase is substantial, from 1.9 million m^3 per annum to over 3.0 million and levelling off at 2.4 million m^3. For Hawkes Bay the increase is from 435,000 m^3 per annum to 638,000 m^3 per annum, levelling off at 467,000 m^3 per annum.

The key point from these data is that the expected volume of pulp logs ex-forest harvest is at or higher than current levels for the next 25+ years.

Figure 1 – Total *Pinus radiata* log harvest for CNI – split non declining yield.[3]



[2] Ministry of Agriculture and Forestry, 2008. Hawkes Bay Forestry and Wood Availability forecasts. Ministry of Agriculture and Forestry, 2009. Central North Island Forestry and Wood Availability forecasts.
[3] Source: Ministry of Agriculture and Forestry, 2009. Central North Island Forestry and Wood Availability forecasts.

Figure 2 - Total *Pinus radiata* log harvest for Hawkes Bay – split non declining yield.[4]

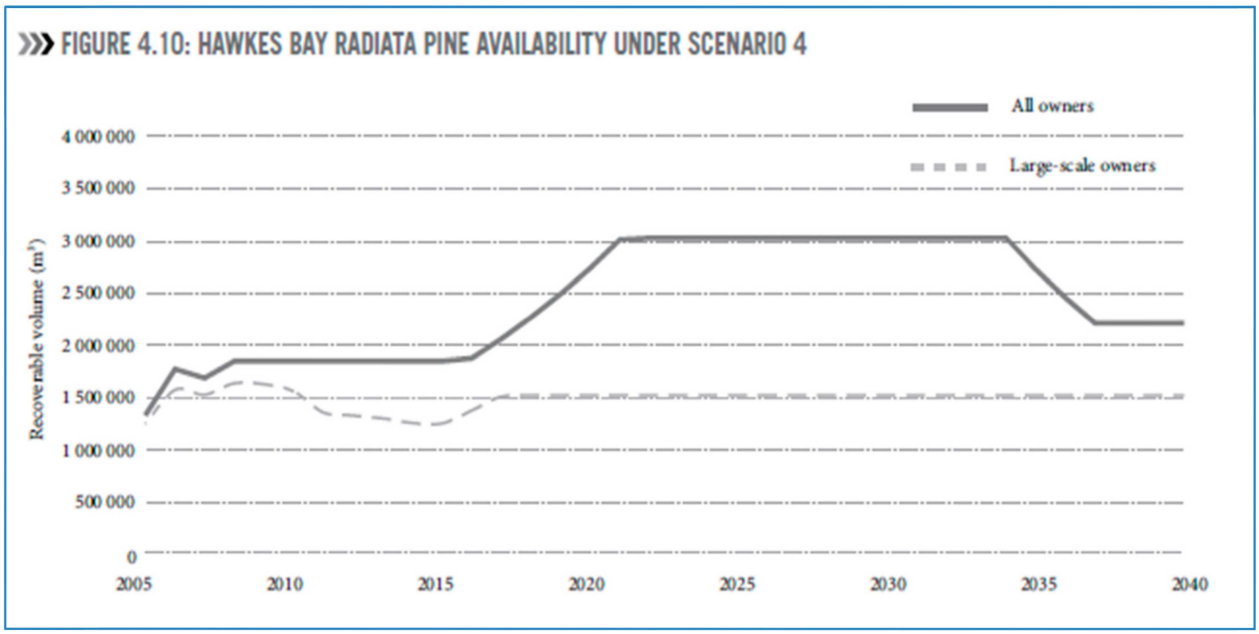
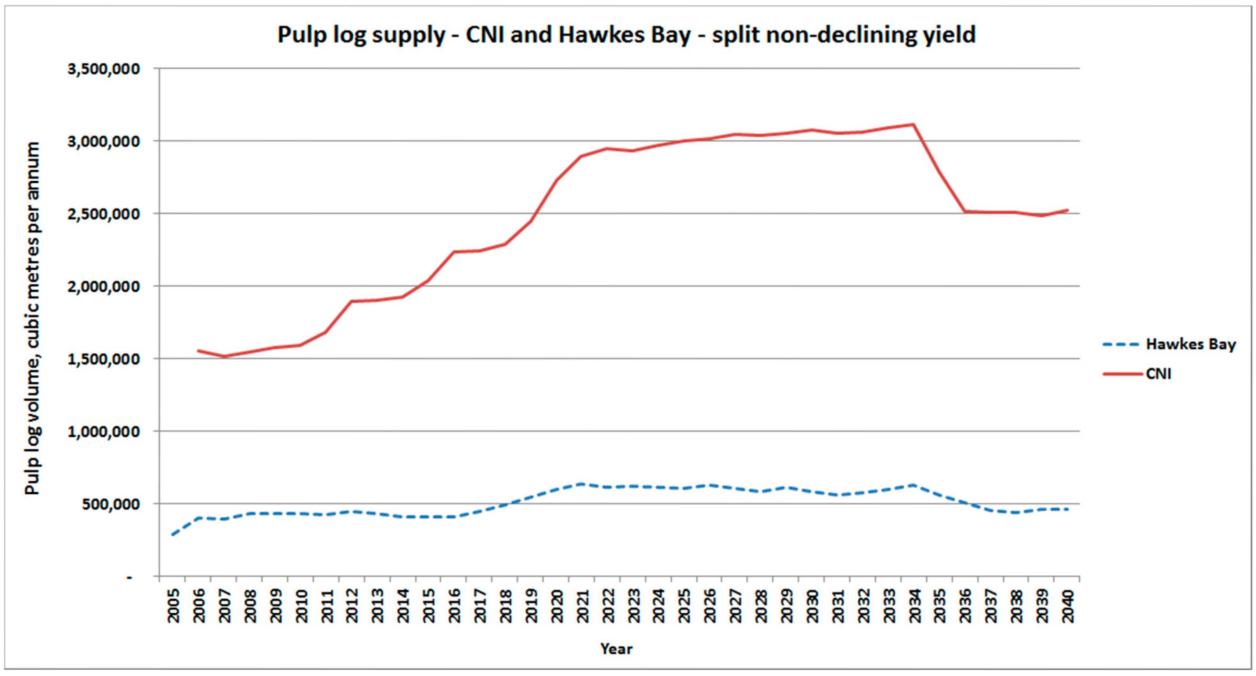


Figure 3 - pulp log supply, CNI and Hawkes Bay.[5]



[4] Source: MAF 2008; Hawkes Bay Forest Industry and Wood availability forecasts.
[5] Source: MAF Wood availability forecasts, 2007 and 2009.

A key point to note is that the MAF / MPI figures were predictions of wood available for harvest, done in 2009. When these predicted figures are compared to current estimates of harvested volumes there is a difference. The MAF 2009 prediction estimated that in 2013 the national cut would be ~25 million tonnes; MPI statistics published for round wood removals for 2013 estimated the national harvest at 29.8 million tonnes, although there is some margin of error around this figure due to application of conversion factors and it could be as low as 26.8 million tonnes.

The current estimated level of harvest is closer to the MAF prediction of the cut in 2019, and indicates that some forest harvest has been brought forward to take advantage of current good log export prices. Given that the CNI is in the order of 31% of the total forest estate in New Zealand it is assumed that there is some early harvest in the CNI, although getting an exact figure for this is difficult. This early harvest of some forest will have an impact on longer term total and pulp log harvest volumes, reducing them slightly. This can be seen when the MPI wood availability scenarios 4 and 5 (clearfell at age 28) are compared for the CNI. If the average harvest age is reduced by two years then the total harvest volume post 2020 is reduced by around 300,000 tonnes (pulp by ~70,000 tonnes).

Whether this early harvest trend will continue is uncertain, current indicators are that North American lumber and China log markets are cooling and demand is softening. The data presented in Figures 1 to 3 are from the MAF wood availability forecasts scenario 4 and these are a reasonable estimate of what is likely to happen.

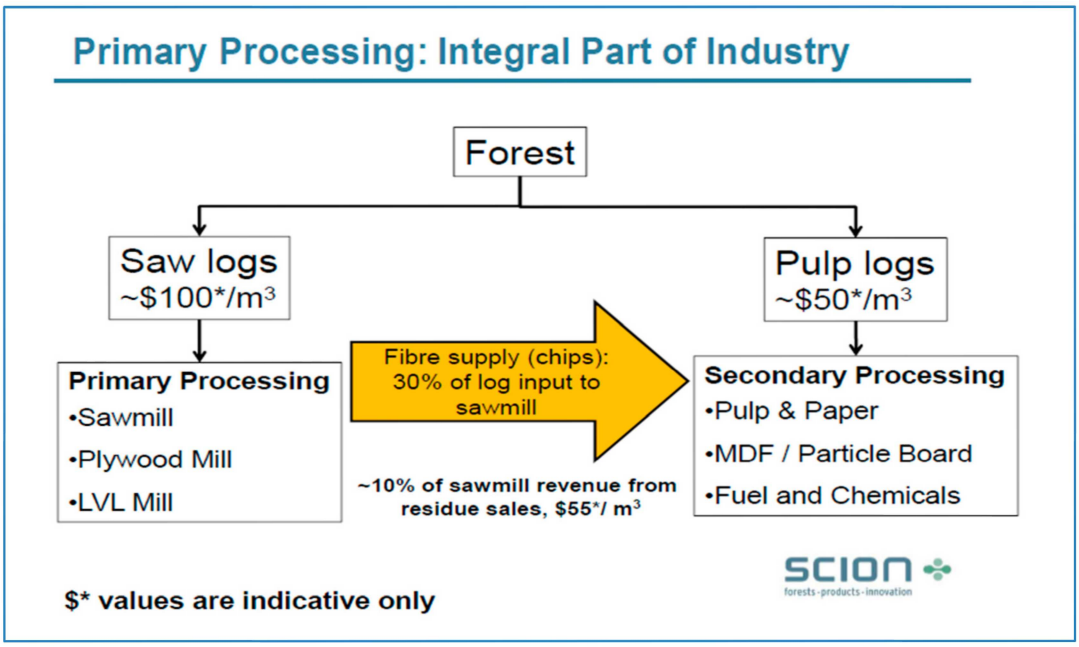
Regardless of whether the current early harvest trend continues to push the actual cut beyond MAF / MPI predictions, wood availability in the CNI will increase over time (2014 to 2020) and could remain at significantly increased levels beyond 2030.

Pulp log prices are currently around $51 per tonne. This has been stable for the last 3 years (Appendix 3). Pulp log prices in 2001 were volatile and ranged from $37 to $49 on a quarterly average basis.

Pulp grade wood chip from sawmills

Pulp mills typically get a significant proportion of their feedstock from sawmill slab chip. This material is a preferred feedstock for the pulp mills as it is generally higher density than the pulp logs. A sawmill commonly converts about 30 to 35% of the logs it takes in into chip and having a market for this material is critical to sawmill profitability (Figure 4). Further, the pulp mills are often heavily dependent on this material to meet their in-feed demands.

Figure 4 – Inter-dependency of sawmills and pulp mills.[6]



The figures provided by Pan Pac indicate that [ ] of their feedstock comes from 3rd party sawmill chips. Their own sawmill also provides some significant volume of pulp chip. Pan Pac's figure for this volume is [ ] for 2013/14 this equates to around [ ] of their in-feed demand. In total, sawmill chip provides around [ ] of the Pan Pac pulp mill fibre demand.

For the CHHPP mills the figures provided show that CHHPP obtains around [ ] tonnes [ ] of its total fibre demand of [ ] tonnes from sawmill chip. The two CHHPP mills vary in their percentages of sawmill chip, with Kawerau being at [ ] and Kinleith at [ ]. This makes sense given the proximity of two large sawmills to the Kawerau mill.

The volume of sawmill chip is indirectly linked to saw log volume availability. Both regions have a significant excess of saw log supply above sawmill capacity and in 2013 saw logs were exported unprocessed through the ports at Napier (1.18 million m^3 per annum) and Tauranga (6.4 million m^3 per annum).

The volume of sawmill chip is more affected by the health of the sawmilling industry – which is currently poor with several mill closures in recent years including Tachikawa in Rotorua which provided chip to CHHPP. At its peak, chip production from the Tachikawa mill could have been as high as 120,000 tonnes per annum. Sawmill processing volumes can also vary with mills moving from double to single shifts. It is difficult to predict what will happen with sawmill chip volume in the CNI or Hawkes Bay, although it can be estimated based on current operations.

[6] Scion 2013. WoodScape summary presentation.

The total volume of sawmill chip being produced in the CNI is estimated at 1.15 million tonnes per annum. More than half of this comes from the 4 largest sawmills in the CNI (Table 1). Table 2 presents similar data for Hawkes Bay.

Table 1 - Major sawmills and pulp chip suppliers – CNI.

Mill	Location	Log Volume (m^3) in	Chip volume tonnes out
Red Stag	Rotorua	800,000	240,000
Tenon	Taupo	420,000	126,000
Sequal Lumber	Kawerau	320,000	100,000
CHH Wood Products	Kawerau	550,000	165,000
Total			**631,000**

The Kinleith mill would be drawing chip from the larger sawmills in Rotorua and Taupo and a number of smaller mills in Rotorua, Putaruru, Reporoa, Thames and the plywood mill co-located with CHHPP Kinleith.

Table 2 – Major sawmills and pulp chip suppliers – Hawkes Bay.

Mill	Location	Log Volume (m^3) in	Chip volume tonnes out
Pan Pac	Napier / Whirinaki	740,000	190,000
East Coast Lumber	Wairoa	30,000	9,000
Napier Pine	Napier	66,000	20,000
Total			**219,000**

[ ] their total chip production could be as much as 57,000 tonnes, but some may be exported via the port at Napier. This material would be more expensive than chip from mills in Napier as it is transported further. There is no chip export via the port at Gisborne.

Both the Pan Pac pulp mill in Napier and the CHHPP Kawerau mill are located close to large sawmills. The largest Kawerau sawmill is owned by CHH Wood Products.

Chip exports

Chip exporting is an indicator of fibre supply versus local processing demand. Figure 5 shows the chip export volumes from Napier and Tauranga. Chip exports from Napier have averaged 258,000 tonnes per annum over the last 9 years, with a recent decline. Chip exports via Tauranga have been minimal since 2005.

New Zealand's chip exports have averaged 736,000 tonnes for the period 1980 to 2013. Figure 6 presents the variation in national chip export volume.

Figure 5 – Chip exports from CNI and Hawkes Bay.

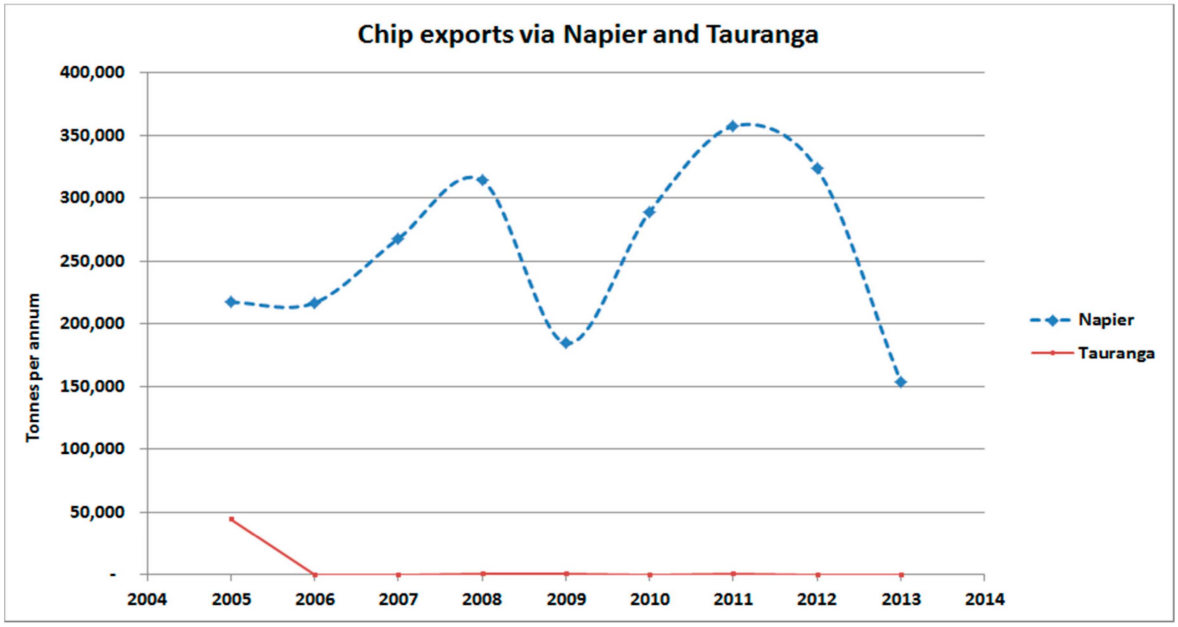
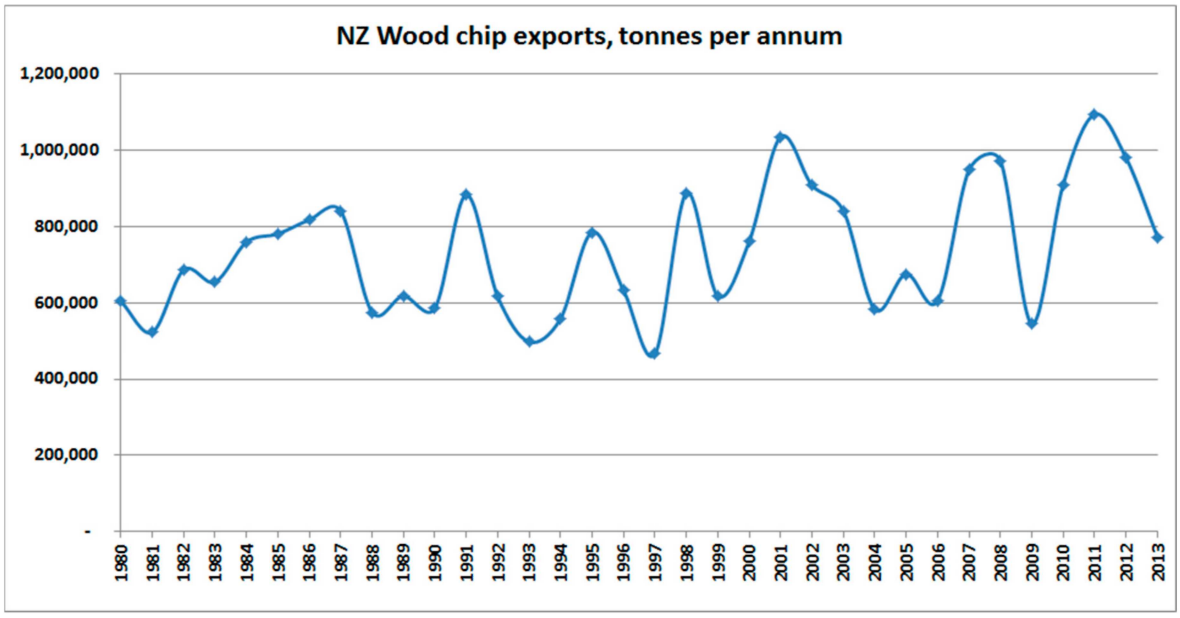


Figure 6 – New Zealand's chip export volume.



Chip exports by port

In 2013 there were chip exports from 3 ports; Whangarei (295,750 tonnes), Napier (154,365 tonnes) and Bluff (64,157 tonnes). Prior to 2013 there were chip exports via Port Chalmers (Dunedin) which averaged 62,800 tonnes per annum 2010 to 2012.

Pulp log exports – nationally it is estimated that around 170,000 tonnes per annum of pulp logs are exported.[7] (Scion 2013). This around 1 % of the total log export volume.

Wood supply catchment map

The three principal mills involved in this analysis are located at Kinleith (South of Tokoroa), Kawerau and Whirinaki (North of Napier). The first two are located in the Central North Island (CNI) wood supply region and the Pan Pac mill is in Hawkes Bay (HB). These mills have substantially different wood supply catchments (Figure 7).

The wood supply catchments were estimated using the average log transport distance for logs in New Zealand. This was estimated as 86 kilometres[8].

The log transport distance is based off road length travelled and so the straight line distance is less due to the wander factor of the roads. Previous work has estimated the wander factor of NZ roads to be in the order of 1.4 (1.15 to 1.8 – Appendix 5). This means the 86 km road distance is likely to convert to a straight line map distance of around 61 kilometres. Thus a straight line map distance of 75 km represents 1.2 times the average haul distance.

The three red circles in Figure 7 represent 75 km from the various mill sites. The bottom right circle is centred on the Pan Pac mill at Whirinaki. The upper left and right circles are centred on the CHHPP mills at Kinleith and Kawerau respectively.

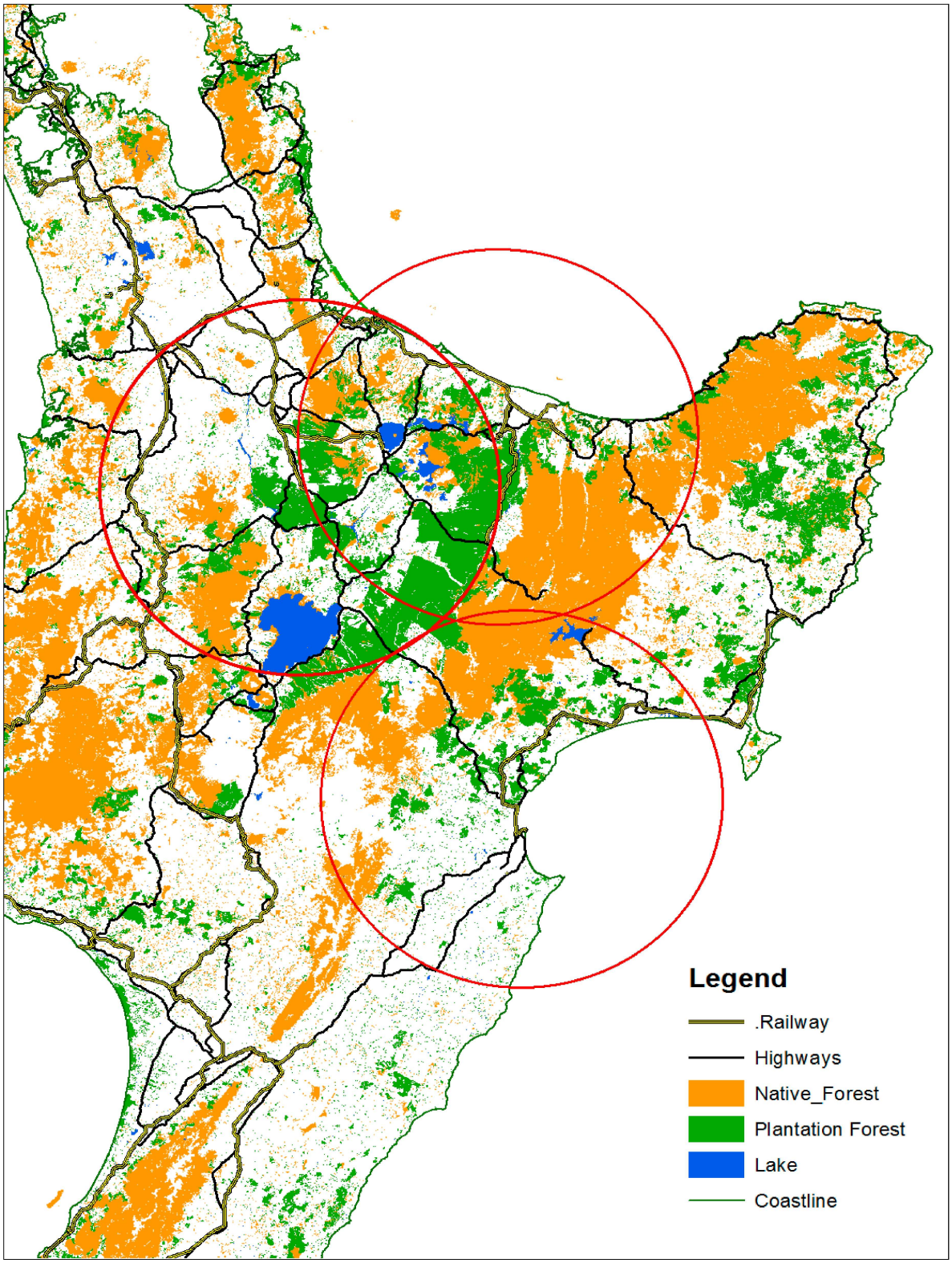
The map also shows major highways and plantation forest area (green) and native forests (brown). Based on the locations of the mills, forests, and highway transport routes there is likely to be minimal competition for fibre between the Pan Pac mill and the CHHPP mills. There is likely to be more readily available fibre available to the north and south (East Coast and Wairarapa) of the Hawkes Bay region than from the west (CNI).

The geographic separation between the CNI and HB wood supply regions can be seen from the strip of native forest between the two regions. The native forests reflect the presence of the Kaimanawa, Kaweka, Huiarau and Raukumara ranges.

There are only two useful highways connecting the two regions; SH5 Napier to Taupo and SH2 Gisborne Opotiki. There is significant elevation change involved in moving from the CNI to Napier by either route.

[7] Scion 2013. WoodScape summary presentation.
[8] NZFOA (New Zealand Forest Owners Association) 2007. Submission to: MOT/Transit Heavy Vehicle VDM Concessions Project.

Figure 7 – Map of CNI and HB forests, highways and mill reference circles.



Wood supply in south-eastern North Island, East Coast and Northland

The wood supply and pulp log figures for the south-eastern part of the North Island, the East coast and Northland (including Auckland) were derived from the Ministry of Primary Industries 2013 National Exotic Forest Description.

Wood supply - South-Eastern North Island

Table 3 - South-eastern North Island territorial authorities, wood supply tonnes per annum.[9]

	Total harvest volume, tonnes per annum					
District	**2013 - 2017**	**2018 - 2022**	**2023 - 2027**	**2028 - 2032**	**2033 - 2037**	**2038 - 2042**
Tararua	169,895	202,281	777,338	227,469	122,599	179,061
Masterton	663,677	406,599	1,280,557	495,268	312,924	239,180
Carterton	182,316	112,010	217,654	370,917	58,548	119,650
South Wairarapa	102,576	165,285	275,379	211,681	60,006	55,701
Total	**1,118,464**	**886,175**	**2,550,928**	**1,305,336**	**554,077**	**593,592**

Table 4 - South-eastern North Island territorial authorities, pulp log supply tonnes per annum.[10]

	Pulp log volume, tonnes per annum					
District	**2013 - 2017**	**2018 - 2022**	**2023 - 2027**	**2028 - 2032**	**2033 - 2037**	**2038 - 2042**
Tararua	50,968	60,684	233,202	68,241	36,780	53,718
Masterton	199,103	121,980	384,167	148,580	93,877	71,754
Carterton	54,695	33,603	65,296	111,275	17,564	35,895
South Wairarapa	30,773	49,585	82,614	63,504	18,002	16,710
Total	**335,539**	**265,852**	**765,279**	**391,601**	**166,223**	**178,078**

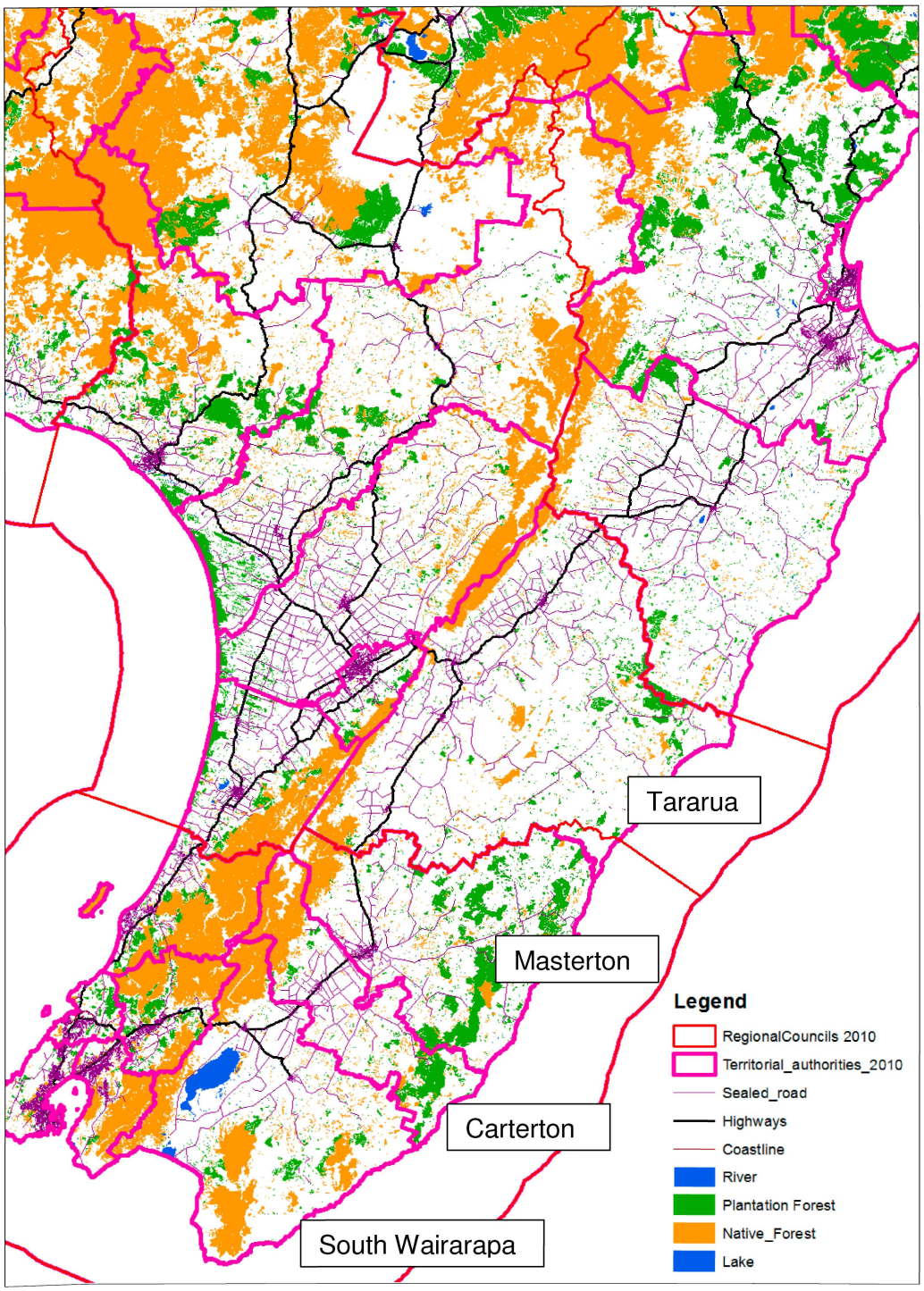
Wood supply from the 4 territorial authorities in the south and east of the North Island show a variable wood supply. This variability will be smoothed in actual harvest. The average harvest 2013 to 2037 would be in the order of 1.2 to 1.3 million tonnes per annum. Pulp log harvest is likely to average 350,000 to 400,000 tonnes per annum. The two districts closest to the Hawkes Bay region to the south are Tararua and Masterton, these regions have a likely average harvest of ~450,000 to 470,000 tonnes per annum, with a pulp log content of 130,000 to 140,000 tonnes per annum.

There are some processing plants in these regions which could and do provide sawmill chip to Pan Pac. There are no wood processing plants in the Southern North Island which would take pulp logs or sawmill chip. Export is the only outlet other than trucking north to Pan Pac or WPI. There is no chip export via the Port of Wellington.

[9] Data derived from MPI 2013, NEFD.
[10] Data derived from MPI 2013, NEFD.

The map below (Figure 8) shows the forests, territorial authority and regional council boundaries and roads for these 4 territorial authorities.

Figure 8 – Forests and territorial authorities – South-eastern North Island.



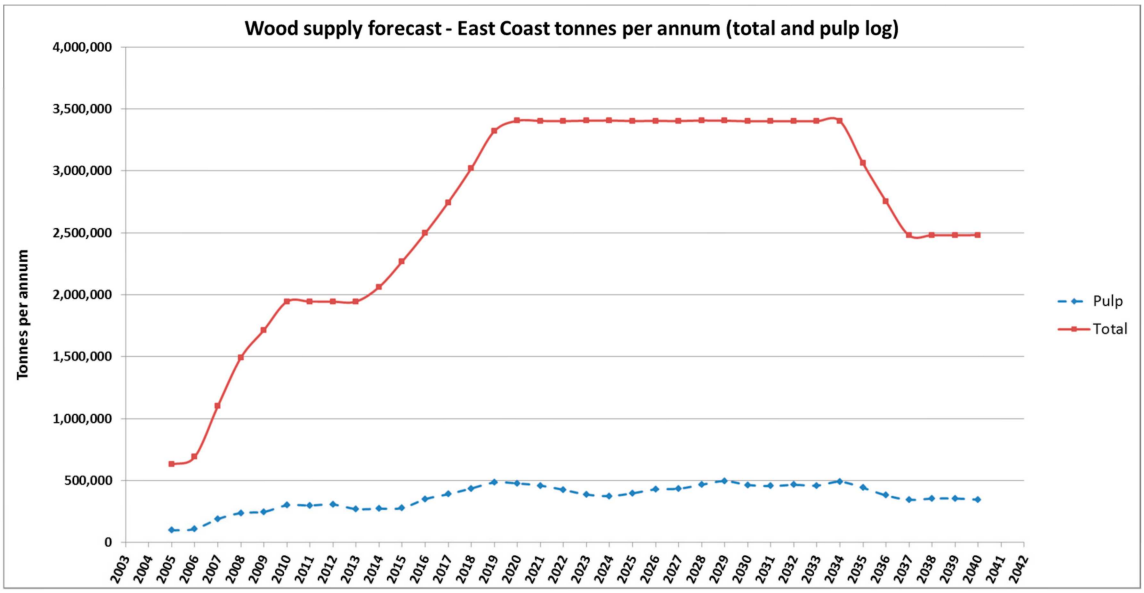
Wood Supply – East Coast

Table 5 - Wood supply and pulp log supply – Gisborne District (East Coast wood supply region), tonnes per annum.[11]

District	2013 - 2017	2018 - 2022	2023 - 2027	2028 - 2032	2033 - 2037	2038 - 2042
Gisborne - all log	2,762,553	2,457,145	5,902,656	3,249,328	1,227,041	2,322,477
Gisborne - pulp log	552,511	491,429	1,180,531	649,866	245,408	464,495

The Gisborne region shows a significant increase in wood supply (and pulp log fibre) over the next 15 years (Figure 9).

Figure 9 - Wood supply forecast – Total harvest volume and pulp log supply.[12]



There are differences in the pulp log volume between the NEFD based prediction and the wood supply forecast. The wood supply forecasts assume a pulp log volume around 14 to 16% of the total harvest. The volumes derived from the NEFD data assume pulp as 20% of the harvest volume. Both are estimates.

The map below (Figure 10) shows that there are significant areas of forest in the East Coast wood supply region, just outside of the Wairoa territorial authority (Hawkes Bay Region).

Note – The MAF Wood supply forecasts indicate a harvest level of ~2.0 million tonnes per annum. A cross check using log export figures and local processing consumption indicates a harvest level of around 2.7 million m^3 which is closer to the figure predicted for 2017.

[11] Data derived from MPI 2013, NEFD.
[12] Ministry of Agriculture and Forestry, 2008. Hawkes Bay Forestry and Wood Availability forecasts.

Figure 10 – Forests and territorial authorities – East Coast