Statistics NEW ZEALAND Te Tari Tatau

Monetary Flow Account for Forestry Resources in New Zealand

1996–1999

Statistics New Zealand

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Environmental Accounts Series

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Table of Contents

Table of Figures

A: Introduction

A.1 Background to Natural Resource and Environmental Accounts

Statistics New Zealand, in association with the Ministry for the Environment, is currently preparing stock and flow estimates for New Zealand's significant natural resources. Full accounts are being prepared for energy, forestry and water resources. At present only physical accounts are being prepared for fish resources. Technically, the physical estimates are referred to as natural resource accounts, while the monetary estimates are referred to as environmental accounts. However, these terms are often used interchangeably. The initial impetus to begin compiling natural resource and environmental accounts came about as a result of decisions stemming from the Budget 2000, where it was decided that more information was required on the complex relationship between the economy, environment and society.

Natural resource and environmental accounts are based on an international framework called the System of Environmental and Economic Accounts (SEEA). This framework is an extension of the System of National Accounts (SNA), which Statistics New Zealand uses to compile the national accounts, including Gross Domestic Product (GDP). The SEEA is designed to measure the use of natural resources and the resulting effects on the environment.

The release of natural resource and environmental accounts reflects an international trend towards compiling information beyond the traditional measures of economic activity. The accounts reflect the view that the environment has a finite capacity to supply materials and absorb wastes that are produced when these materials are used in economic activities. The aim of the flow accounts is to measure this supply of natural resources, how they are used, and the residuals being produced that the environment must absorb.

This is the third report in the forestry series, and introduces monetary information for the first time to complement the physical information in the previously released *Physical Flow Account for Forestry Resources in New Zealand.*[1] The tables in the report present both physical and monetary data together for each commodity's supply and use by the industries involved. This format is consistent with the concept of hybrid accounts promoted in the SEEA.[2] Hybrid accounts enable comparisons to be made between the volumes and values involved in transactions taking place within the economy for the identified commodities.

This report provides monetary and physical information on the flow of forestry products in New Zealand from 1996 to 1999. While physical information is available for the year 2000, the corresponding monetary information is not yet available. For years 1996 to 1999, the tables in this report are comparable with the tables in the physical flow account.

The fourth and final report in the forestry natural resource series will be the monetisation of the physical stock account. This will provide valuation estimates of the various forestry stocks that are available to the New Zealand economy, both exotic forests and sustainably managed indigenous forests. The report should be available in the second half of 2003.

1. For further details see:
http://www.stats.govt.nz/domino/external/web/prod_serv.nsf/Response/Forestry+Natural+Resource+Accounts#PhyFlow
2. 'Hybrid' in this context refers to tables combining both physical and monetary data. For further details see the SEEA document online at http://www4.statcan.ca/citygrp/london/publicrev/pubrev.htm

A.2 Background to Flow Accounts

For more background information on New Zealand natural resource accounting, the SEEA and the SNA, see the report *Natural Resource Accounts for New Zealand – Overview Document* available on the Statistics New Zealand website.[3]

A.3 The Role of Forestry Products in the New Zealand Economy

The introduction to the *Physical Flow Account for Forestry Resources in New Zealand* describes how the wood processing industry developed in New Zealand. The introduction in this report looks at the significance of these developments in terms of the role forestry products have played in the New Zealand and international economies.

A.3.1 Historical Importance

The first recorded economic trading for timber in New Zealand took place during early encounters between European sailors and Māori in the late 18th century. These encounters included ship captains negotiating with local Māori chiefs for suitable kauri trees for use as sailing spars, and European whalers trading with Māori for kauri timber to repair their ships.

By the late 1820s, trading in timber and other wooden products had become firmly established in both domestic and export markets. The importance of timber in domestic markets varied greatly between the regions, with the north of the North Island having the largest role. Auckland was a particularly important supplier of export timber due to the close proximity of high quality wood, good infrastructure and the accessibility of the Australian market.

The remainder of the 19th century was largely characterised by unregulated expansion of the wood processing industry to provide for the expanding population. New Zealand at this time was principally a wooden world, with seven out of every eight New Zealanders living in wooden homes. Wood was the main fuel for cooking and heating. Numerous bridges and miles of fences were made out of wood, as were a large number of everyday implements and tools. The environmental historian Graeme Wynn[4] recognised that the New Zealand economy, and New Zealand as a whole, would have developed quite differently had there not been the abundance of timber resources readily available to exploit.

Although the British government had expressed concerns about future supplies of New Zealand timber for its navy as early as the 1840s, the debate about the depletion of New Zealand's forests and unease about potential future wood shortages continued until the end of the nineteenth century. Wynn (2002) observes that at a major timber industry conference in 1896, the Prime Minister of the day noted "that the timber lands of the colony were getting smaller day by day, and lamented that little benefit had fallen to the country or its people from their exploitation." One of the chief arguments was that the timber being burnt by settlers was more valuable than the land that was eventually fenced and sown. Public concern at the end of the 19th century and beginning of the 20th century grew to such an extent that, in 1913, the government set up a Royal Commission to examine the future of New Zealand's natural forests and national timber supply. The commissioner recommended that inaccessible areas or those with little agricultural potential should remain forested for watershed protection, scenic benefit, or timber supply. Also, due to the slow growth rates of New Zealand's indigenous trees, the commissioner recommended that

3. http://www.stats.govt.nz/domino/external/web/prod_serv.nsf/htmldocs/Natural+Resource+Accounts
4. Wynn (2002). '*Destruction Under the Guise of Improvement'* in *Environmental Histories of New Zealand,* eds Pawson E and Brooking T, Oxford University Press, Victoria, Australia, 105-106.

areas that were previously forested, and had limited agricultural capability, might be afforested with introduced species to meet future timber needs.

New Zealand legislation relating to the preservation of native forests during this era was primarily based on economic motives. Historians Paul Star and Lynne Lochhead[5] note that the Forests Act 1874 and its successors were designed by the government to ensure the long-term supply of timber for the development of the colony. They also reflected the concerns the government had of potential economic costs to them from droughts and downstream flooding caused by the removal of the native bush. Although much of the Forests Act 1874 was quickly repealed, it did provide the legislation for the creation of state forests. The role of these state forests were clarified a decade later by the State Forests Act 1885. The State Forests Act also imposed several new regulations on loggers and sawmillers to ensure that there would be a steady supply of timber resources for future use, thereby ensuring the future of the forestry and wood processing industries.

Between 1919 and 1987, the government's forestry operations were run by the New Zealand Forest Service. The Service was responsible for the first large scale planting of exotic plantations. The Forests Act 1949 stated that the primary objective of the department was to produce and market forest products profitably. This legislation guided the industry through until the early 1980s. During the mid-1980s there was a shift in government policy towards a free market philosophy. This and other factors led to the end of the government's direct involvement in the ownership and management of commercial forests in New Zealand. The other drivers behind this change included the forecast surge in timber available for supply, the need for downstream investment in processing and the increasing need to consider environmental issues.

In 1988, the Government announced the sale of publicly-owned forests, administered through the Crown Forest Assets Act 1989. While the main aim of this policy decision was to increase profitability from the resource, it also aimed to enable the growth of the New Zealand wood processing industry through increased security of supply. The government perceived that commercial enterprises would be more willing to invest in capital when they owned both the processing plant and the raw material; in this case, the standing timber in the forest.

As observed by the New Zealand Institute of Economic Research (NZIER),[6] the first forest sales had no conditions attached regarding the destination of the harvested timber. This led to some people within the forestry industry voicing concerns over the intentions of forest buyers. The fear was that existing supply arrangements to processing plants would not be met as logs would be directly sent to export markets to provide immediate cash flow to cover the forest purchase costs. The government accepted these fears and placed a number of supply and intent conditions on later sales. In their 2000 report, the NZIER observed that all of the new forestry owners had already invested or were intending to invest in "value added" processing facilities in New Zealand.

The 'Asian crisis' from late 1997 to late 1998 clearly demonstrated the dependence New Zealand places on the Asian market, particularly for logs and panel products. The NZIER conducted a research project comparing actual export prices between July 1997 and March 2000 with a counter-factual scenario based on forecasts made immediately prior to knowledge of the Asian crisis.[7] Their findings suggested that, between July 1997 and June 1999, the events in Asia

5. Star & Lochhead (2002) '*Children of the Burnt Bush'* in *Environmental Histories of New Zealand,* eds Pawson E and Brooking T, Oxford University Press, Victoria, Australia, 121.
6. NZIER – *Devolving Forest Ownership Through Privatisation*, 2000.
7. For detail see: http://www.maf.govt.nz/mafnet/rural-nz/statistics-and-forecasts/sonzaf/2000/finance.htm#Asian crisis.

resulted in a loss of $197 million in the forestry industry's domestic contribution to GDP, and $94 million to forestry exports. The NZIER suggests in the report that the beginning of the recovery can be seen in the nine months to March 2000, with gains of $48 million to exports and $94 million to GDP being estimated.

A.3.2 Current Situation

It is widely acknowledged within the forestry industry that the current situation is one of:

- an expanding resource

  This situation is due to the large-scale plantings of radiata pine in the early 1970s to mid-1980s, primarily in the central North Island, reaching a harvestable age.

- a small and fairly constant domestic market

  A 10 percent increase in the population of New Zealand is projected during the first 10 years of the new millennium, from approximately 3.8 million people to 4.2 million.[8] This together with the fact that New Zealand is already among the largest users of wood products per capita in the world means it is unlikely that this situation will change in the foreseeable future.

- and insufficient processing capacity to meet the volume of timber becoming available.

  While there has been some investment made to increase processing capacity, especially in the Northland and Nelson areas, the increases are not nearly sufficient to meet the volumes of timber becoming available.

It is within these circumstances that the forestry industry in New Zealand is attempting to increase the value added it gains from harvested trees. Approximately one-third of the volume of timber felled from New Zealand forests is currently exported without further processing. The exporting of unprocessed logs is widely seen as a lost opportunity, as much of the value of the timber is being gained in the country of destination, not by New Zealand. The industry is well aware of the need for investment in both processing plants and infrastructure, such as improving the roads leading to ports, to take advantage of the well publicised increase in available wood supply now reaching maturity. New investment is especially important in areas outside the traditional forest plantations of the central North Island. The challenge the industry faces is how to encourage this investment.

A.3.3 Future Forecasts

The *Situation and Outlook for New Zealand Agriculture and Forestry*[9] (*SONZAF*) is an annual document produced by the Policy Information and Regions group within the Ministry of Agriculture and Forestry (MAF) to inform interested parties of the condition and expected future of land-based production sectors. The following forecasts for wood products are taken mainly from the 2002 edition, which is based on information available up to 25 November 2002. Forecasts are taken solely from *SONZAF* publications as these are deemed to be the most comprehensive and robust estimates available. The forecasts provided in the *SONZAF* documents are used by The Treasury, the Reserve Bank and a number of international agencies.

8. Statistics New Zealand 2001-base population estimates.
9. Available on-line at http://www.maf.govt.nz/mafnet/rural-nz/statistics-and-forecasts/sonzaf/

MAF Export Outlook for Forestry Products Table

March years		2000a	2001a	2002a	2003	2004	2005
Logs							
Value	$000,000	574	716	714	721e	789f	887z
Price	$/m^3	99	121	97	88e	87f	91z
Volume	‘000 m^3	5,811	5,919	7,383	8,195e	9,015f	9,736z
Sawn Timber							
Value	$000,000	677	774	826	834e	851f	921z
Price	$/m^3	477	506	503	478e	464f	468z
Volume	000 m^3	1,398	1,528	1,644	1,743e	1,830f	1,958z
Boards and Panels							
Value	$000,000	410	509	515	522e	535f	577z
Price	$/m^3	537	603	593	569e	558f	580z
Volume	000 m^3	763	844	868	920e	966f	1,004z
Pulp							
Value	$000,000	505	675	522	530e	627f	664z
Price	$/t	645	913	657	657e	756f	786z
Volume	Kt	783	739	794	818e	842f	859z
Paper							
Value	$000,000	451	597	568	547e	612f	712z
Price	$/t	1,016	1,180	1,088	957e	1,053f	1,201z
Volume	Kt	444	487	499	568e	580f	591z

Source: Statistics New Zealand and MAF (*SONZAF* 2002)
Symbols: a actual, e estimated, f forecast, z projected

A steady growth in production of logs is projected due to the large areas of exotic forest planted in the 1970s and early 1980s, primarily in the central North Island, reaching a harvestable age. Due to the steady domestic market the only viable option currently available is to export the additional volumes. Demand currently exceeds supply in the world log market; the scope is therefore present to absorb the additional volumes available to export markets. The Republic of Korea accounted for 56 percent of New Zealand log exports for the year ending March 2000. It

has seen a steady growth in its economy during the first few years of the new millennium and will, together with Japan, continue to be the chief destination for log exports. There is also potential for expansion in the newer Asian markets, such as China and India. Trade figures show that the Chinese market grew by 128 percent between March 2001 and March 2002.

As a result of the steady increase in log production, MAF also projects a steady increase in the production of sawn timber. MAF projections suggest that one-third of additional timber production will be exported. Australia and the United States are expected to continue as the main markets for timber. The United States market is predicted to grow significantly due to increasing acceptance of high quality dried/dressed radiata pine as a substitute for their domestic ponderosa pine. The United States replaced Australia as the main country of destination in the year ending March 2002, taking 45 percent of timber in 2002 compared with 25 percent in 2000. The Australian market, which is mainly a market for construction grade timber, has seen a slight reduction over the same period from 27 percent in 2000 to 23 percent in 2002. The Chinese construction industry is also seen as having great potential as sawn timber volumes available for export increase in the coming years.

MAF predicts that production and exports of panel products will continue to grow; these will mainly be in the form of medium density fibreboard (MDF), plywood and laminated veneer lumber (LVL). Production capacity of LVL has recently been increased due to extensions of existing processing plants in Northland and Nelson, although optimum production levels are unlikely to be reached until 2005. The additional LVL and plywood volumes are destined for construction industries throughout Asia. Japan is the main destination for MDF exports, where it is used in the furniture manufacturing industry.

The volume of pulp production is expected to remain fairly constant in the short term, with no major pulp mill upgrades or new capacity anticipated. With no increase in production, exports are also expected to remain fairly constant. MAF suggests that if there is any strengthening of domestic demand, exports may actually fall; this is because pulp exports comprise the excess to domestic paper mill demand for pulp feedstock. The limited availability of pulp is also predicted to restrict the growth of paper and paperboard production and exports. MAF notes that the value of exports of pulp and paper will continue to fluctuate in the future. This fluctuation is due to the cyclical pattern of international pulp prices caused by the shift in balance between demand for paper and world pulpmill capacity. Japan is expected to remain the main country of destination for wood pulp, where it is processed into paper. Australia is by far the largest market for paper product exports, particularly newsprint.

The longer-term future of the pulp, paper and panel industries is less clear. All three of these industries are reliant on pulp logs, small logs and wood chip residuals as feedstock (see the diagram on page 17). With current climate change policies, particularly the ratification of the Kyoto Protocol, promoting the use of bio-fuels, these industries will potentially face stiff competition for the limited supply of raw material. If in future there are more logs domestically processed, increased amounts of wood chip residuals from sawmills would occur. These residuals would possibly be able to support both the growth of the bio-fuels industry as well as enabling increased production of pulp, paper and panel products. Climate policy will not affect plywood and LVL future production, as both of these products are produced from solid timber, so availability of inputs is unlikely to restrict their future capacity.

A.4 Overview of Forestry Products and Residuals

This section has been repeated in a largely unchanged form from the Physical Flow Account for Forestry Resources in New Zealand *report, as it applies to tables in both physical and monetary units.*

The commodities chosen to be included in the forestry flow accounts were determined both by conceptual and practical factors.

Conceptually, the principle behind the forestry flow accounts is to show how the harvested timber volumes, reported in the physical stock account, are being used in the economy, together with details of any residuals that are created during the process. This is consistent with SEEA guidelines on forestry flow accounts. All commodities were therefore identified which show the flow of all harvested timber from when it is first removed from the forest to when it is first sold as a finished good, and the main residuals that are created.

Practical factors determined the final list of commodities to be included. The practical factors mainly hinged on the availability of accurate and timely data to enable a complete picture of the supply and use of the given commodity to be produced.

The flow account is based on the commodity classification MAF uses for its forestry production statistics. This meets both the conceptual and practical requirements of the forestry account. On the conceptual side, the classification covers the forestry products relevant to New Zealand. Other forestry classifications exist, but on the practical side the MAF data provides the best source for New Zealand forestry volume data. Some residual commodities were also added to the commodity set used in the forestry account. Commodities have been further categorised in the flow tables 'forestry products' and 'forestry residuals'.

There is sufficient data available to enable full coverage of forestry product flows to be reported. However, there is little volume data and even less monetary data available for forestry residuals. Therefore, residuals have not been included in the tables in this first monetary flow report. Some residual volume estimates have been included in the previously released *Physical Flow Account for Forestry Resources in New Zealand.*

A.4.1 Forestry Products

Logs and Poles

Logs are the primary commodity taken from forests, and from where virtually all other wood products are derived. Nearly two-thirds of all logs harvested remain in New Zealand for further processing or are directly purchased by industries such as the construction industry. The remainder are directly exported.

MAF identifies three types of 'log product', which are known as roundwood products. The three types are poles, posts and firewood. Roundwood products resemble logs and are used without further conversion. They are not separately identifiable in the supply and use tables.

Poles are perhaps the most valuable roundwood products. They are used by a variety of industries and for a variety of uses including building foundations and retaining walls, marina piles, and telegraph poles. Poles are used in some New Zealand houses as the main structural support.

Posts have a lower value due to their size. Again, they are used by a variety of industries for a variety of uses including agricultural and forestry fencing, horticultural structures, and for domestic household use.

By removing the bark and some surface wood from the trunk and larger branches of felled trees, poles and posts are produced. Most poles and posts are then treated with preservatives to protect them against insect and fungal attack.

Firewood is of only minor importance in New Zealand when compared internationally, where it is used extensively for both domestic and industrial heating and cooling.

Wood Chips (chipped logs)

Wood chips, in the form of chipped logs, are an important input into both the pulp and the reconstituted panel product industries.

Small logs, chipped at specialist chip mills are purchased by the 'other wood product manufacturing' industry where they are reduced to wood particles or wood fibres in the production of particleboard and fibreboard. Chipped pulp logs are purchased from chip mills by the wood pulp industry for the production of chemical and mechanical pulp.

Wood chips are also produced as a residual from the manufacture of other wood products, such as sawn timber. See A.4.2. Wood Chip Residuals, for more information.

Sawn Timber

The sawn timber industry involves the production of lumber products from saw logs that are higher quality logs that exhibit the qualities necessary to produce solid wood finished goods for a variety of uses. Sawn timber is graded based on the following: appearance, its visual quality; structural qualities, its strength and stiffness; and cutting qualities, the use of clear length between whorls and knots. The grading of timber will determine its final use. The highest visual quality lengths may be used in the manufacture of wooden furniture and mouldings, while a low visual, but high structural graded length, may be used as hidden framing for furniture, or for wall framing, trusses, etc by the construction industry.

Veneer

Veneer is manufactured by either peeling or slicing high quality peeler logs to produce thin sheets. In New Zealand most veneer production is from radiata pine logs, which are soft and pliable and do not require preconditioning. Veneer in New Zealand is produced by a small number of specialist veneer manufacturers and is either exported as veneer or further processed into plywood or laminated veneer lumber (LVL).

Plywood

Under the MAF commodities, used in the forestry flow accounts, plywood includes both plywood products and LVL products.

Plywood is produced by gluing together one or more sheets of veneer to both sides of a veneer or solid wood core, while alternating the grain between sheets. This basic construction makes plywood ideal for use in the construction industry for bracing walls, as it is able to withstand large racking forces, such as earthquakes.

LVL manufacture is similar to plywood. The difference lies in the thickness of the individual veneer sheets used and the way that the sheets are laid with the grain following the same direction in consecutive sheets. Sheets are then laminated to improve the overall strength by dispersing the weakness caused by defects, such as knots, across a wider area. LVL is primarily used in the construction of beams, i-joist flanges, scaffold planks and trusses because of its strength and stiffness properties.

Particleboard

Particleboard is a reconstituted wood composite product that is made from wood particles, as opposed to wood fibres or sheets of wood. Particleboard includes a variety of different individual products including flakeboard, waferboard, and oriented strand boards. These products are primarily used in structural applications in the construction industry, such as wall bracing and flooring.

The development of particleboard manufacture arose from the desire to utilise waste and residuals created in the manufacture of other wood products, such as sawn timber offcuts and planer shavings; these are classified as wood chip residuals in the forestry flow accounts. Particleboard is traditionally manufactured from coniferous wood, but may use a number of non-wood fibres such as linen flax shives, bamboo, and jute. Non-wood fibres currently account for approximately 5 percent of input material.

Fibreboard

Fibreboard is a reconstituted wood composite product similar to particleboard, but is generally produced from low-grade wood and some residuals. These inputs are reduced to wood fibre (as opposed to particles), which is then bonded with resin to produce board and sheet products.

The most common fibreboard product is medium density fibreboard (MDF). However, some hardboards and softboards are also manufactured. MDF is primarily used in joinery and furniture making. It has a uniform density, smooth surface and edge when cut due to the minute fibre size, making it ideal for use by these industries. Radiata pine is the principal wood used in the production of MDF in New Zealand.

Chemical Pulp

Pulp, either chemical or mechanical, is the basic material used in the production of paper and paperboard products. The pulp is mixed with water and spread in thin sheets. When the water is then removed essentially what is left is paper. In practice, a number of other materials are added to improve the surface, strength, and other qualities of the paper.

Chemical pulp is either manufactured from pulp logs chipped at the pulp mill or from residual chips purchased from other wood product manufacturers. Processing the chips by different methods results in a variety of different types of pulp. Soda pulp is the original method, usually made from deciduous wood chips, and produces relatively soft, bulky paper that is used in books, magazines, and envelopes. Sulphite pulp is made from softwood chips that are less resinous and produces stronger, longer and more pliable paper. The third main type of chemical pulp is sulphate pulp, also referred to as kraft pulp. This is an advanced form of the soda pulp process and is suitable for most types of wood chip. It is used to produce paper where strength and resistance to wear and tear are essential qualities, such as paper sacks and bags.

Mechanical Pulp

By grinding pulp logs, mainly low-density softwoods, against a revolving abrasive stone, mechanical pulp is made. Due to the process involved, paper made from mechanical pulp tends to be denser than paper made from chemical pulp, making it particularly suitable for use in the printing industries.

Newsprint

The majority of newsprint is produced from mechanical pulp, although small amounts of chemical pulp are added to the mix to increase paper strength. Newsprint manufacture is a basic speedy process that allows large low-cost volumes to be produced at a high rate (600–700 metres per minute on wide machines). Blue dye is sometimes added to enhance the 'whiteness'.

Other Paper and Paperboard

Paper and paperboard products are produced by the addition of a variety of materials to a base material, usually chemical pulp. These additions include ‘sizing’ agents that are used to give the paper a smooth even surface, pigments and bleaches used to colour the paper, and clays that are used to coat the paper.

There are several hundred specific paper and paperboard products, which are generally grouped into seven broad groups. Newsprint is one and has been included as a separate commodity in the physical flow account. The other main groups are writing paper, greaseproof paper, wrapping paper, tissue paper, paperboards, and corrugated boards. Each will have a differing ‘recipe’ depending on the qualities expected of the finished product.

A.4.2 Forestry Residuals

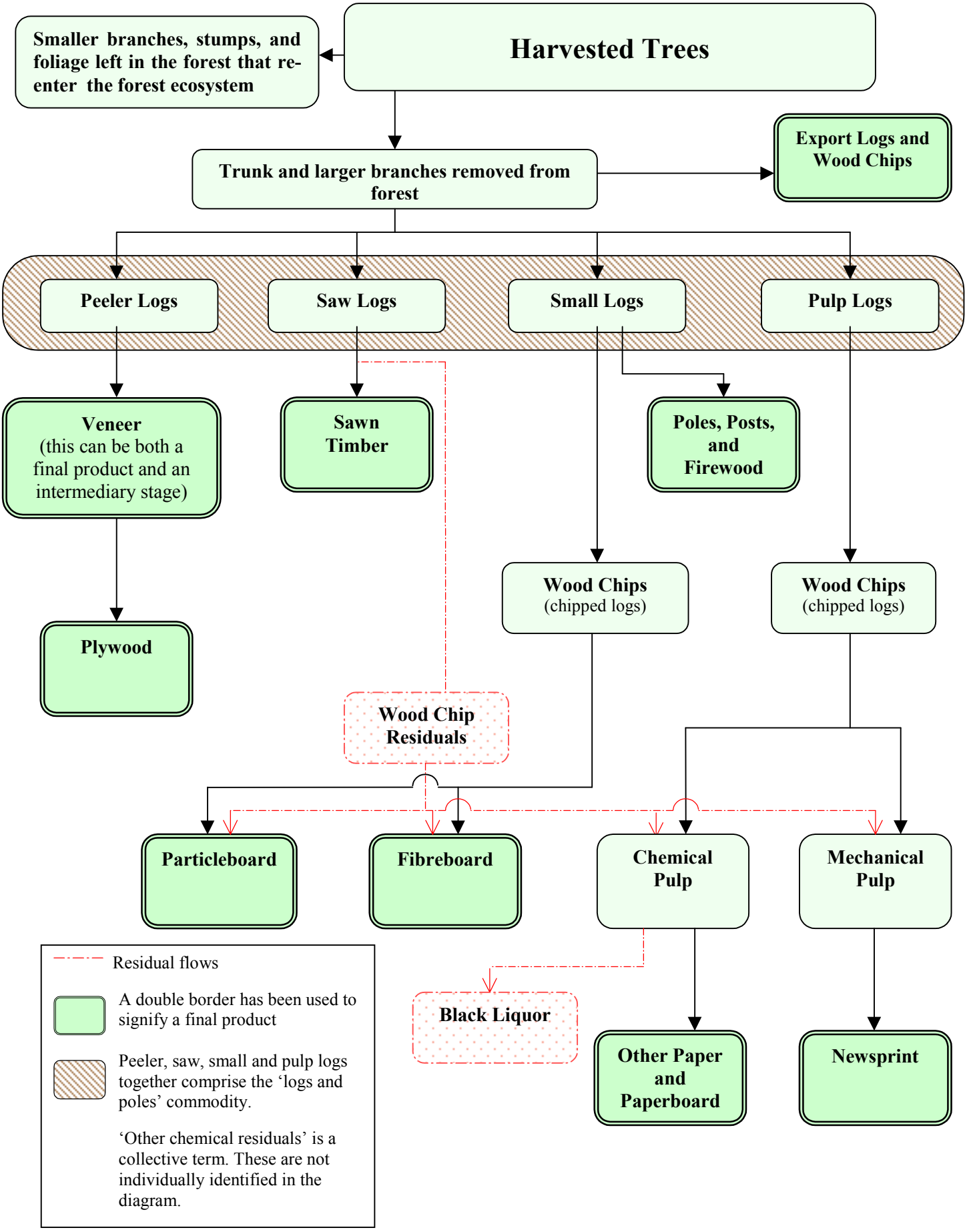
MAF estimates that approximately 15 percent of a tree is left in the forest after felling. This comprises the stump, smaller branches and foliage. While this could be considered a residual of the timber industry, it is also an important component of the forestry ecosystem through the recycling of nutrients back to the soil. This process can enhance future cultivation, but is not analysed further in the flow account.

While the wood processing industry effectively utilises the total volume of wood removed from the forest, it should be noted that some of this utilisation is through the use of residuals of certain elements of the industry. These have been included in the supply and use table to show where they occur and their significance.

Wood Chip Residuals

Wood chip residuals are a collective term used to describe the wood waste pertaining to the wood processing industry. Residuals include offcuts, slabwood, planer shavings, and sawdust. These residuals are collected up and either used internally or sold to other manufacturers in the production of particleboard, fibreboard, and wood pulp.

Flow of timber from the forest to final forestry product, including use of wood chip residuals



Black Liquor

Black liquor is the liquid material that remains after pulp logs are cooked in the production of chemical pulp. It contains approximately 70 percent wood component and is burnt as an energy source within the pulp industry. Black liquor has not been included in the current flow tables due to a lack of available data, but may feature in future releases.

Chemical Residuals

There are also a significant number of other chemical derivatives produced by the various wood processing industries with end uses as varied as liquid fuels, explosives, pharmaceuticals, food products and paints. While these products have not been measured in the flow accounts, due to a lack of available data, their future inclusion would help complete a full picture of the flows within the wood processing industry.

A.5 Overview of Forestry and Forestry Related Industries

This section has been repeated in a largely unchanged form from the Physical Flow Account for Forestry Resources in New Zealand *report, as it applies to tables in both physical and monetary units.*

The forestry flow account identifies industries that are either directly involved in forestry and wood processing or whose principal business is not forestry or wood processing, but who play a significant role in the supply or uses of forestry products. These industries are included to show which sectors of the economy are supplying and using forestry products to give a clearer understanding of what happens to timber after it has been removed from the forest.

All industries have been classified according to the industry classification ANZIND 1996 (see section B.1.2: Industry Classifications and appendix 2: ANZIND 1999 V5.0 for further details). In order to ensure all transactions involving forestry products and residuals are reported, new categories have been created in the flow accounts for industries that are not included individually.

Sheep and Beef Cattle Farming

This industry supplies logs from farm forests. It uses forestry products in many ways, with a major use being posts for fencing.

Primary activities in this industry are:

- Farming including sheep, beef cattle.
- Other activities including prime lamb raising, wool growing, raw sheep milk production and beef cattle feedlot operation.

Dairy Cattle Farming

As with sheep and beef cattle farming, owners here may have areas of forest on their land that are harvestable for logs, and will also use a variety of forestry products such as posts for fencing.

Primary activities in this industry are:

- Dairy cattle farming.
- Raw cattle milk production.

Forestry

The forestry industry is engaged in the growing and maintenance of standing timber, both in exotic plantations and native forests. It is the principal supplier of logs and poles that are then used by other industries for the manufacture of forestry products.

Other Agriculture, Forestry and Logging

This category includes all other agricultural, forestry and logging industries (see appendix 2). It also includes services to forestry and agriculture including agricultural fencing contractors, fishing industries, and a range of other agricultural industries including: fruit and vegetable growing; grain growing; poultry, horse, deer and pig farming.

Log Sawmilling and Timber Dressing

This industry is one of the main users of logs, which are used as an input to produce sawn timber and wood chips.

Primary activities in this industry are:

- Manufacturing of; rough sawn timber including sleepers, palings, and scantlings, resawn timber from logs sawn at the same mill, ground bark, wood chip, and dressed and/or dried building timber.
- Chemical preservation of rough timber/logs produced in the same unit.

Other Wood Product Manufacturing

This industry is the main producer of veneer, plywood, particleboard and fibreboard.

Primary activities in this industry are:

- Manufacturing of: plywood, wooden veneer or veneer sheets, chipboard, particleboard, cores (plywood or veneer), cellular wood panels, wooden fabricated boards, resin-bonded board, and softboard.
- Manufacturing of: wooden door-window units, wooden or wooden framed doors, wooden roof trusses, wooden structural fittings, wooden wall frames, wooden framed windows, and wooden barrels, cases and casks.
- Manufacturing of cork or cork products, wood picture frames or mirrors, wooden packing cases, wooden tool handles, and wood flour.

Pulp, Paper and Paperboard Manufacturing

This industry is the main producer of chemical and mechanical pulp, newsprint and other paper and paperboard. The main inputs into this industry are logs, wood chips, and chemical and mechanical pulp.

Primary activities in this industry are:

- Manufacturing of cardboard, newsprint, paper, paper pulp, paperboard, solid fibreboard sheets and wood pulp.

Paper and Paperboard Containers

This industry primarily produces other paper and paperboard products.

Primary activities in this industry are:

- Manufacturing of solid paperboard containers, corrugated paperboard containers, bags and paper, insulation materials, cellulose fibre, paper products for example drinking straws, tissue or sanitary papers, toilet paper rolls, trays and cartons, paper pulp and wallpapers.

Printing and Services to Printing

This industry does not supply any of the specified forestry products captured in this account; it is separately identified, as it is one of the main users of other paper and paperboard.

Primary activities in this industry are:

- Paper stationery manufacturing such as albums, calendars, games, greeting cards, labels, paper, office machine paper, paper stationery, playing cards, toys from printed paper and paperboard.
- Printing including screen-printing, stationery, and paper.
- Commission, commercial, general and job printing.
- Services to printing including; artwork preparation service, bookbinding, colour separation film manufacturing, phototypesetting and layout service, plate-making film service, printing trade services, and typesetting and composing service.

Publishing Recorded Media Manufacturing and Publishing

This industry also does not supply any of the specified forestry products captured in this account. It is separately identified, as it is the sole user of newsprint and main user of other paper and paperboard.

Primary activities in this industry are:

- Newspaper printing.
- Publishing of newspapers, periodicals, art prints, books, maps, sheet music.

Furniture Manufacturing

This industry does not supply any of the specified forestry products captured in this account, but it does use a significant amount of sawn timber and veneer and also uses some panel products.

Primary activities in this industry are:

- Manufacturing of wooden furniture and upholstered seats, sheet metal furniture, mattress (except rubber) and other furniture.

Other Manufacturing

'Other manufacturing' includes all other manufacturing industries (see appendix 2: ANZIND 1996 V5.0). Some of the activities included in this category are: food, beverage and tobacco manufacturing; textile, clothing, footwear and leather manufacturing; petroleum, coal, chemical and associated product manufacturing; non-metallic mineral product manufacturing; metal product manufacturing; and machinery and equipment manufacturing.

The majority of these industries involvement with forestry products is through their use of other paper and paperboard goods. There is also a notable amount of use of sawn timber and panel products by the plastic, rubber and metal product manufacturing industries.

Residential Building Construction

This industry uses a significant amount of sawn timber, fibreboard, particleboard and logs, in the construction of residential housing.

Primary activities in this industry are:
- Construction of residential building such as: houses, apartments, duplex houses, flats, home units, and semi-detached houses.
- On-site assembly, erection or installation of prefabricated houses.
- General repair or renovation of residential buildings.

Non-Residential Building Construction

This industry also uses a significant amount of sawn timber and fibreboard, and also uses some other panel products.

Primary activities in this industry are:
- Construction of non-residential buildings such as commercial buildings, hotels, industrial buildings, institutional buildings, and religious buildings.
- On-site assembly, erection or installation of non-residential buildings, excluding sheds garages or carports.
- General repair or renovation of non-residential buildings.

Non-building Construction

Uses a significant amount of sawn timber.

Primary activities in this industry include:
- Road and bridge construction (including runways, parking lots, viaducts, road construction and sealing).
- Other non-building construction (including irrigation systems, dams construction, jetties construction, railway construction, tunnels and water tank construction).

Other Construction

'Other construction' is a category created for the physical flow accounts, and includes all other construction industries. Some of the activities in this category include: owner builders; site preparation services; building structure services; plumbing services and installation trade services; building completion services such as plastering, carpentry, and decorating; and other construction services such as landscaping.

Builders Supplies Wholesaling

This industry has a large variety of activities. The main activity captured in this account is timber wholesaling. This industry supplies a significant amount of sawn timber, and uses a significant quantity of logs which are converted to sawn timber on site.

Primary activities in this industry include:
- Timber wholesaling including plywood, timber and veneer dealing.
- Building supplies wholesaling including wholesaling of: bricks, doors and windows, gas fittings, hand tools, sand, plastic wood, wall or ceiling boards, and woodworking tools.

Ownership of Owner-Occupied Dwellings

This industry does not supply any of the specified forestry products captured in this account, but it does use a significant amount of other paper and paperboard products. This industry represents households owning their own home. Intermediate expenditure in this industry usually covers activities such as decoration, maintenance and repair of the dwelling.

All Other Industries

'Other industries' includes all other industries not already included in the forestry flow tables. Activities in this category include: mining; electricity, gas and water supply; wholesale trade; retail trade; accommodation, cafes and restaurants; transport and storage; communication services; finance and insurance; property and business services; government administration and defence; education; health and community services; cultural and recreational services; and personal and other services.

'All Other Industries' is a residual category, and is not identical on both the supply and use side of the tables. Different industries have been separately identified on each side of the table, depending on their importance as either a producer or consumer of forestry products.

B. Classifications and Description of Tables

B.1 Classifications

This section has been repeated in a largely unchanged form from the Physical Flow Account for Forestry Resources in New Zealand *report, as it is applicable to tables in both physical and monetary units.*

B.1.1 SEEA Asset Classification

There is a strong link between the forestry stock accounts and the flow accounts. The recoverable volumes harvested, as found in the physical stock account, are the basis for the flows. Having taken the amount harvested, the physical flow account then shows how the variety of different forestry products originating at logs, moves throughout the economy. The monetary flow account shows the dollar values associated with the physical flows. The monetary flow account has been produced under the same SEEA asset classification as the physical accounts, EA.141 Timber Resources. See appendix 1 for the full SEEA asset classification.

EA.1 Natural Resources

EA.11 Mineral and energy resources
EA.12 Soil resources (cubic metres, tonnes)
EA.13 Water resources (cubic metres)
EA.14 Biological resources

EA.141 Timber resources (cubic metres, hectares)
EA.1411 Cultivated
EA.1412 Non-cultivated

EA.142 Crop and plant resources, other than timber
EA.143 Aquatic resources
EA.144 Animal resources, other than aquatic

Calculating the account under EA.141 timber resources means focusing on the resource of timber. The volume estimates in the monetary flow account include only the recoverable volume from harvesting and thinning. It excludes bark and the non-recoverable volume. As observed in section A.4.2, MAF currently estimates the non-recoverable volume as 15 percent of the recoverable volume. While in most cases this non-recoverable volume is left in the forest, it cannot necessarily be considered waste or environmentally damaging, as much of it decomposes and provides nutrients to the soil, and assists with future planting and production.

In terms of the scope of forestry flow accounts, only primary commodities and the products they are directly used to produce are included. Non-wood products such as sphagnum moss, kauri gum, and eucalyptus oil are not included in this initial set of tables, but may feature in future releases if data allows.

B.1.2 Industry Classifications

The industrial classification used for the physical flow account is the ANZSIC Defined Industries Classification (ANZIND96) V5, based on the Australia and New Zealand Standard Industrial Classification, NZ Version 1996 (ANZSIC96). This is consistent with the industry classification used for the New Zealand national accounts. This will enable the forestry flow account to be

integrated into the full system of national accounts, if required, and will facilitate the easy and accurate use of data between the two accounts, and will ensure that flows and transactions between areas of overlap are as consistent and comparable as possible. This will also be important if an environmentally adjusted GDP is to be calculated in the future.

B.1.3 Commodity Classifications

The commodities identified in the physical flow accounts have been classified based on MAF standard commodities for forestry, as discussed in section A.4: Overview of Forestry Products and Residuals. The MAF commodity classification is derived from the FAO[10] Forestry Products classification.

B.2 Description of Tables

B.2.1 Supply and Use Summary Table

The summary tables provide a concise view of the volume and value estimates for each forestry commodity, for each year. Supply is shown in terms of production and imports. Use is shown in terms of consumption, stocks, and exports.

B.2.2 Supply and Use Industry Breakdown Table

The main table for each year is a detailed analysis showing which industries are responsible for the supply and use of each commodity. Both volume and value estimates are included to enable comparisons to be made.

B.2.3 Time Series Summary Table

The summary table, on page 43, provides a time series of forestry products and residuals supply and use between the years 1996 and 1999 in both volumes and values for easy reference. Only one figure is recorded for each product (or residual) for each year, as the supply total is equal to the use total in all cases.

B.2.4 Supplementary Table

A supplementary table, on page 52, shows the countries of destination for exports of selected forestry products for the year ending March 2002. The table presents information in both volumes and values.

10. Food and Agriculture Organisation of the United Nations.

C. Sources and Methods

The research undertaken for the forestry monetary flow account expands on the research that took place for the publication of *Physical Flow Account for Forestry Resources in New Zealand*. During the calculation of volume estimates for physical flow account, financial data was also analysed to aid the accurate allocation of volume data and to ensure the physical account would be consistent with the monetary account. This financial analysis forms the starting point of research for the monetary flow account.

C.1 Details of Data Sources

Only the data sources used directly in the research for the monetary account are discussed in this report, in sections C.1.2 Statistics New Zealand Monetary Trade Statistics and C.1.3 Statistics New Zealand Data for the Domestic Economy. Please refer to the *Physical Flow Account for Forestry Resources in New Zealand* for details of the sources used in physical analysis, such as MAF production statistics and the Statistics New Zealand Census of Manufacturing 1995.

C.1.1 Statistics New Zealand Monetary Trade Statistics

Overseas Merchandise Trade statistics provide statistical information on the importing and exporting of merchandise goods between New Zealand and other countries. Exporters/ importers and their agents supply data on overseas merchandise trade to the New Zealand Customs Service. The New Zealand Customs Service processes and passes the data to Statistics New Zealand for compilation into statistics.

Statistics New Zealand produces trade statistics in both monetary and physical units annually. Commodities are classified using the New Zealand Harmonised System Classification (NZHSC). Statistics New Zealand in conjunction with MAF, have created a concordance that maps the MAF forestry commodities against the NZHSC. This concordance was used to calculate the import and export volumes and values estimates in the supply and use tables.

C.1.2 Statistics New Zealand Data for the Domestic Economy

The Inter-Industry Study 1996, was used as a data source for the physical flow account estimate, and was used again for the monetary account. As the study provides a very detailed analysis of the financial transactions within the economy for the year 1996, it was not only useful for that year, but also in aiding accurate allocations in future years where commodity information was not as comprehensive.

For the years 1997 to 1999, value estimates are primarily based on the findings of the input-output studies carried out by the National Accounts division of Statistics New Zealand. Input-output studies are conceptually the same as inter-industry studies, but are not conducted to the same level of detail. Both are based on the concepts found in the United Nations System of National Accounts (1993, usually referred to as the SNA93).

C.1.3 Monetary Valuation in the Supply and Use Tables

The forestry monetary supply and use data is expressed in producer's prices. This is defined in the SNA93 as "the amount receivable by the producer from the purchase of a unit of a good or service produced as output minus any VAT, or similar deductible tax, invoiced to the

purchaser".[11] Use of producer's prices has some advantages for input-output analysis; one analytical benefit is that the total value of the supply of each commodity must equal the total value of the use of that commodity when using producer's prices.

The monetary forestry flow tables are in producer's prices and are therefore exclusive of GST. The tables also exclude any wholesale and retail margin that applies to forestry products. See Section D for further discussion on the treatment of wholesale and retail transactions in the forestry accounts.

C.2 Methodology and Analysis

The starting point of the methodology in this document is the integration of overseas trade data, the completed set of physical flow tables for the years 1996 to 1999, the Inter-Industry Study 1996 and the input-output tables for years 1997 to 1999. For each year, the supply and use tables show transactions of the forestry commodities discussed in section A.4: Overview of Forestry Products and Residuals. 'Supply' includes domestic production and imports, while 'use' includes domestic consumption, exports and any products held as stocks.

C.2.1 Hybrid Tables and Implied Prices

The analytical benefits of natural resource accounting are increased when transaction details of the actual exchange in the commodity (volume) are provided with details of the exchange value (monetary). For this reason, the tables in the monetary account provide details of the supply and use of all the commodities, for each industry, in both cubic metres of roundwood equivalent and New Zealand dollars. The cubic metre data is the same as is in the *Physical Flow Account for Forestry Resources in New Zealand*.

While this design makes it possible to derive an implicit price for each commodity transaction,[12] the prices have not been included in the tables because they are not true market prices. Implicit prices are also derived differently to standard price series, being derived from the monetary and physical estimates, rather than surveys of prices.[13] Implied price movements in particular should be treated with caution.

However, implicit prices were used in the validation process to aid the accurate allocation of value data from the input-output studies. Implicit prices served two uses; where appropriate they were used to ensure all industries were paying or receiving the same 'price' for a given commodity. They were also used to check the relative 'price' between various commodities were consistent with true market prices. For example, sawn timber is a more expensive commodity than chemical pulp for the same volume, and this difference should be reflected in the tables.

C.2.2 Constructing the Hybrid Supply and Use Tables

The first stage in the construction of the hybrid supply and use tables was to add the volume data from the physical flow account. Hybrid supply and use tables are similar in basic structure to the physical supply and use tables. The first stage was therefore to expand the existing physical

11. SNA93, 6.205.
12. By dividing the monetary estimate by the physical estimate, a price per cubic metre can be derived.
13. Note that the quality of implied prices are likely to be lower than the quality of the volume or value estimates. A simple example illustrates this. If the monetary and physical estimates are correct to within +/- five percent, the implied price estimates will only be correct to within about +/- 10 percent, since the monetary estimate could be overestimated and the physical estimate underestimated, and vice versa.

supply and use tables, produced for the *Physical Flow Account for Forestry Resources in New Zealand*, to enable both values and volumes to be recorded together.

The first monetary information added was for imports and exports. Using the NZHSC concordance, discussed in section C.1.2 Statistics New Zealand Monetary Trade Statistics, values taken from published overseas trade figures were placed in the relevant cells corresponding to already present volumes.

The next stage was the addition of domestic financial information from the Inter-Industry Study 1996 and the final balanced version of the input-output tables for years 1997 to 1999. This was the most involved stage, as it often required the source data to be manipulated, due to differences between the classification systems used. The processes used are discussed in section C.2.3.

Both the forestry account and the input-output studies (and inter-industry) are classified according to the current Statistics New Zealand industry classification, ANZIND 1996 V5.0. However, the commodity classifications used in the forestry account and the input-output (and inter-industry) studies are not the same. The forestry account is based on the MAF commodity classification, while the input-output (and inter-industry) studies conducted by National Accounts use the NA96CC classification. To enable values from the input-output (and inter-industry) studies to be allocated to commodities in the supply and use tables, the two classification systems had to be concorded. See Appendix 3: Concordance between NA96CC and MAF Forestry Product Commodities for details.

Where the MAF commodity is the same as the National Accounts 1996 commodity, for example, the ‘sawn timber’ commodity, the National Accounts estimate was directly entered into the forestry table. However, with most commodities there is not an exact classification match, so the National Accounts commodity estimates needed to be either aggregated or disaggregated. The following section discusses how each commodity was treated in the forestry account.

Once the initial set of tables had been compiled, further analysis was conducted through a number of ‘reality checks’ to refine and improve the estimates. Commodities were analysed separately, looking for unexpected implicit price movements between years. Then they were analysed collectively for each year, to identify any potentially inaccurate implicit price patterns between commodities. Price analysis resulted in a few minor adjustments to the tables. The final stage of the analysis was to check that the revised estimates were still consistent with the source data at the total level.

In some instances, small revisions in the allocation of volumes occurred because the input-output studies for 1997 to 1999 became available after the publication of the *Physical Flow Account for Forestry Resources in New Zealand*. The supply and use tables in the physical flow account document have been revised accordingly.

As with the tables in the physical flow account, it is the intention of Statistics New Zealand to update the hybrid tables over time, adding data for the latest year(s) when the information becomes available.

C.2.3 Individual Commodity Analysis

Logs and Poles

The MAF logs and poles commodity concords to the NA96CC commodities '031.00 wood in the rough' and '313.00 wood in the rough, treated'. Therefore the sum of these two commodities was placed in the appropriate industry column in both the supply and use tables.

On the supply side, a derived price was calculated for total production. Using this derived price and the individual industry monetary values, the physical volumes were reallocated so that all industries showed the same implicit price for their supply of logs and poles. This is unlikely to truly reflect the actual situation. The forestry industry may be producing better quality logs due to better economies of scale and forestry management, but a lack of suitable data means it is not possible to quantify this effect. Due to the dominance of the forestry industry in supplying this commodity, however, in practice this assumption should be quite reasonable.

Because the volumes on the use side are based on actual annual log data provided by MAF (not on monetary proportions),[14] it was not necessary to adjust physical figures based on the monetary figures. This results in different industries having different derived prices for their log purchases. However, this is to be expected, as there are a number of log types of varying quality (eg pulp, saw and peeler), that are used in the economy by different industries, and the derived prices for each industry appear rational once this is taken into account.

Wood Chips

The monetary flow account only includes the volume of wood chips where a financial transaction is involved. For details of wood chips volume flows where no financial transaction is involved, please refer to the *Physical Flow Account for Forestry Resources in New Zealand*. These generally occur as intra-business unit volume transfers, for example saw mill residues used within the same plant.

Wood chips are not a separately identifiable commodity in either the input-output studies or the Inter-Industry Study 1996, as they form only part of NA96CC commodity 312.00 ‘wood continuously shaped along one edge, wood wool, wood in chips or particles’. Therefore the valuation of the domestic volumes calculated in the physical flow account needed to be estimated using alternative data sources. Trade data does, however, include monetary values for wood chips, and was used for wood chip import and export estimates.

The Producers Price Index (PPI),[15] maintained by Statistics New Zealand, monitors changes in both domestic and export prices of a large number of commodities including the wood chips commodity. A price for wood chips was derived from data used to calculate the wood chip PPI, and this price was applied to volumes involved in financial transactions to derive an overall value estimate for wood chips.

Sawn Timber

14. Individual industry volume allocations are generally allocated using the proportions seen in the inter-industry study 1996, see the methodology in the *Physical Flow Account for Forestry Resources in New Zealand* document for further details.

15. The PPI measures prices relating to the production sector of the economy, for further details see: http://www.stats.govt.nz/__4c2567e200085097.nsf/3153e23ac69cb3d84c25680800821fa4/7970e1192d45854ecc256b1800798b4a?OpenDocument

The MAF sawn timber commodity has a one-to-one relationship with the NA96CC commodity '311.00 Wood, sawn or chipped lengthwise'. Therefore, the monetary values were placed directly into the appropriate industry column in both the supply and use tables.

Small adjustments were made to physical volumes for both supply and use based on the derived prices and monetary values to give a uniform implicit price for all industries. The sawn timber commodity has the highest number of suppliers and users. All industries will not pay exactly the same price, as there are a number of different grades of timber. The use of a uniform implicit price was deemed the most accurate method of allocating volumes in the absence of alternative volume data by industry, or appropriate detailed price information.

Veneer

Veneer has a one-to-one relationship with the NA96CC commodity '315.00 Veneer sheets'. As with 'sawn timber' the monetary values were placed directly into the appropriate industry column in both the supply and use tables.

The physical volumes in the 'use' table were (like sawn timber) reallocated based on the derived price and monetary values to give a uniform implicit price for all industries. This reallocation was not necessary for the supply side, as there is only one industry involved in the production of veneer.

Panel Products Commodities

The MAF plywood, particleboard and fibreboard commodities, when combined, concord to the National Accounts ‘boards and panels’ commodity. Separate monetary estimates for 1996 were possible through analysis of the Inter-Industry Study 1996 and detailed commodity information from the Census of Manufacturing 1995.

However, for the years 1997 to 1999, only the combined value of the three commodities was known (from the respective input-output study), together with separate volume estimates. Individual monetary values were therefore estimated using the 1996 relative derived price ratio between the three commodities and applying these to the ‘boards and panels’ input-output totals. This approach was used for both the supply and use table. Slight adjustments were made to ensure all the industries involved with either supply or use showed the same implicit price. The assumption has been made that the relative derived prices for these commodities remain at the 1996 ratios. It may be possible to review this assumption in the future using actual price data, which may result in revisions to the monetary estimates for these commodities in future releases.

Pulp, Paper and Paperboard Commodities

A similar situation to the panel product commodities occurs with the pulp, paper and paperboard commodities. The NA96CC commodity ‘321.20 pulp, paper and paperboard’ must be split to provide monetary values for the four MAF commodities included in the forestry accounts: chemical pulp, mechanical pulp, newsprint, and other paper and paperboard.

Chemical pulp, mechanical pulp and newsprint are only supplied by one industry.[16] Therefore the ‘pulp, paper and paperboard’ value taken from the input-output study for other industries was placed directly into the ‘other paper and paperboard’ commodity in the supply table. Volumes were adjusted slightly to ensure all industries were receiving the same implicit price. The value estimate could then be calculated for the supply of ‘other paper and paperboard’ by the ‘pulp,

16. The ‘pulp, paper and paperboard manufacturing’ industry.

paper and paperboard manufacturing' industry using this implicit price and the volume in the physical flow account.

On the use side, the first step was to finalise the value and volume allocation for industries that were only involved in the use of 'other paper and paperboard' to the 'other paper and paperboard' commodity, again making minor adjustments to volumes to ensure implicit prices matched. The input-output value for the three industries[17] using more than one pulp and paper commodity were split between the MAF commodities through the use of the relative ratios between the commodities seen in the Inter-Industry Study 1996, while ensuring implicit prices for each commodity remained consistent across industries.

17. The 'pulp, paper and paperboard manufacturing, 'paper and paperboard containers' and 'publishing recorded media manufacturing and publishing' industries.

D. Interpreting the Supply and Use Tables

This section has been repeated in a largely unchanged form from The Physical Flow Account for Forestry Resources in New Zealand *report, as it applies to tables in both physical and monetary units.*

D.1 Concepts in the Supply and Use Tables

When analysing the flow account it should be noted that the supply and use tables may count the same volume several times, as it is converted into different forestry products. For instance, a cubic metre of logs may be counted in the supply table twice: once as logs and poles, and once as sawn timber. Similarly, the same logs could be recorded as used by the 'log sawmilling and timber dressing' industry, while the sawn timber derived from the logs could be used by the 'furniture manufacturing' industry. Such 'double counting' of volumes only occurs when a forestry product is converted into another forestry product.[18] The individual industry totals for volumes therefore only show the magnitude of processing or consumption by the industry, not the actual amount of wood removed from the forest[19] that is either supplied to the economy or consumed by the individual industry. The grand totals for supply and use are included for accounting purposes only, to show that total supply equals total use. This treatment is conceptually similar to the treatment of commodities in National Accounts input-output tables.

Value estimates in the hybrid supply and use tables are conceptually the same as the volume estimates. The value estimates show all transactions between industries for the identified forestry products.[20] As with volumes, the same underlying physical volume maybe included in more than one monetary transaction, for example the sale of sawn timber to the construction industry. The first transaction occurs when 'logs and poles' are sold to the 'log sawmilling and timber dressing' industry, when the sawn timber is then sold after being processed from the logs, a second transaction for the same volume occurs. Both of these transactions are recorded in the tables even though they are derived from the same physical source. Again this 'double counting' only occurs when a forestry product is transformed from one product to another. The individual industry totals for values therefore show the sum of all financial transactions by the industry for the identified commodities. As with volumes, the grand totals for monetary supply and use are included for accounting purposes only, to show that total supply equals total use.

It is recognised that because the volume and value estimates have been derived from separate sources there is the risk that comparisons between the two series may not be valid, as they are not measuring exactly the same thing. To assess this risk, some analysis was undertaken to compare the survey frames used to produce the two series, how the products of the companies surveyed were classified and whether or not any intra-industry flows could be identified. While the

18. The tables only include wholesale (and retail) transactions of forestry products where the product has been transformed by the wholesaler (or retailer) into a different forestry product. For example, sawn timber output of wholesalers in the supply table represents the conversion of logs into sawn timber by the wholesaler. This output does not include sawn timber purchased by the wholesaler and sold without further processing.
19. Although the tables do show the total timber removed from the forest entering the economy. This is where the physical flow account links to the total harvesting in the physical stock account. The structure of the tables (which are based on standard national accounting models) do not allow for the direct tracking of all timber moving through the economy, although this information is not necessarily available anyway. Some flows, such as the exports of logs and poles, are easily identifiable.
20. As with volumes, only wholesale (and retail) transactions of forestry products where the product has been transformed by the wholesaler (or retailer) into a different forestry product are included.

analysis did identify some differences in the frames, in practice they are not significant and have little or no effect on the estimates in the supply and use tables and their implicit prices.

D.2 Explanation of Industry Totals

Some of the allocations of forestry products to certain industries require some explanation. In many cases, a business may be involved in several different types of productive activities. For example, a sheep or beef cattle farmer may also have a small pine forest that provides income. In the case of a business involved in a number of activities, the assigned industry classification will be based on the activity that provides the main source of income. This may help explain the situation where the supply or use of a commodity initially appears unexpected or unusual. In many cases, the supply or use of a forestry product by a certain industry is a secondary activity, and is very small relative to that industry's total output or consumption.

Agriculture and Forestry Industries

This sector of the economy is the principal supplier of logs and poles. Small logs are also used in these industries, particularly for fence posts. The relatively high use of small logs by the 'other agriculture, forestry and logging' industry is thought to be due to the inclusion of agricultural fencing contractors, together with deer and other livestock farming.

Manufacturing Industries

The manufacturing sector accounts for approximately 52 percent of total production and approximately 76 percent of intermediate use of forestry products, in terms of volume. It also accounts for the total supply and use of forestry residuals measured in the flow accounts.

An initial examination of the tables would suggest that the 'log sawmilling and timber dressing' industry supplies twice the volume of forestry products that it uses. This is due to the fact that conversion factors do not account for the use of residuals. For a discussion of this issue refer to section C.2.2.1: Defining Roundwood Equivalent in the *Physical Flow Account for Forestry Resources in New Zealand*. The supply of sawn timber and chipped logs both come from the same use of logs and poles, which is why similar volumes are seen for the three commodities.

The 'other wood product manufacturing' industry has a significant number of internal flows which partly accounts for its high supply and use totals. A similar situation occurs in the 'pulp, paper, and paperboard manufacturing' industry where the initial input of pulp logs is first converted to wood pulp and then to newsprint and other paper and paperboard.

Construction Industries

The construction sector is the principal consumer of sawn timber and panel products. Some small logs are also used for construction of pole houses and retaining walls. These industries do not supply many forestry products.

Other Industries

The estimate of supply of logs and poles by 'all other industries' has been investigated. A proportion of this volume can be attributed to the Department of Corrections from prison forestry enterprises, and by road haulage companies supplying firewood that they have obtained from sawmills in the form of off-cuts and slabwood.

E. Glossary

Commodity: A commodity is any substance or product that can be bought, sold, or traded. The commodities used in the forestry flow tables in this report are defined in A.4.1: Forestry Products.

Consumption: "Consumption is an activity in which institutional units use up goods and services; consumption can be either intermediate or final" (SNA Glossary, OECD 2000, p 10).

Environmental accounting: Under the SEEA framework, environmental accounting refers to the combination of natural resource accounts, which consists of stock and flow accounts in physical terms, and the monetary valuation of these accounts.

Exotic forest: Includes all areas of forests comprising non-native species. In New Zealand they mainly consist of radiata pine and to a lesser extent Douglas-fir, but also include a variety of other hardwood and softwood species.

Exports: The forestry flow account includes exports of products but not services. Therefore, exports relate only to merchandise exports. Merchandise exports refer to goods of domestic origin, and re-exports, sent from New Zealand to other countries. (Statistics New Zealand)

Forestry products: These include wood products, the primary goods derived from timber felled in the forests, and non-wood products sourced from the forest. Non-wood products include such goods as fruits and nuts, medicines, industrial extracts (eg cork, rubber and gum) as well as forest animals. For the purposes of this account the terms forestry products and wood products are synonymous, as the non-wood products are currently out of scope of the flow accounts.

Forestry residuals: Forestry residuals, in terms of the forestry flow account, include all the by-products and waste products that are produced during the manufacture of forestry products.

Gross Domestic Product (GDP): A measure of the total economic activity occurring within the national boundary of a country. It measures the total market value of goods and services produced in New Zealand after deducting the cost of goods and services used in the process of production, but before deducting allowances for the consumption of fixed capital.

Harmonised System (HS): The classification adopted by New Zealand on 1 January 1988 for processing customs entries and publishing statistics on external trade. It replaces the Customs Co-operation Council Nomenclature (CCCN)-based tariff and the SITC statistical classification.

Imports: The forestry flow account includes only products, no services, and as such imports relate only to merchandise imports. Merchandise imports refers to goods arriving in New Zealand, having been consigned from other countries, for intermediate consumption or for storage in bonded warehouses. (Statistics New Zealand)

Indigenous forest: Defined by MAF as "land wholly or predominantly under the cover of indigenous tall forest canopy trees".

Industry: "An industry consists of a group of establishments engaged on the same, or similar, kinds of production activity" (SNA Glossary, OECD 2000, p 25). The classification of productive activities used in the forestry flow account is based on the Australian and New

Zealand ANZSIC defined industries 1996, based on ANZSIC (Australian and New Zealand Standard Industrial Classification). See A.5: Overview of Forestry and Forestry Related Industries for more detail.

Natural resource accounting: An accounting system that deals with stocks and flows of natural assets, comprising biota (produced or wild), subsoil assets (proved reserves), water and land with their aquatic and terrestrial ecosystems. The term is used frequently in the sense of physical accounting as distinguished from monetary (environmental) accounting. However, the terms natural resource accounting and environmental accounting are often used interchangeably.

Peeler logs: These are generally high-grade logs, which will provide a high appearance grade when peeled or sliced. They are used in the production of veneer, which is then further processed into plywood or laminated veneer lumber (LVL).

Production: "Production is an activity, carried out under the responsibility, control and management of an institutional unit, that uses inputs of labour, capital and goods and services to produce outputs of goods and services" (SNA Glossary, OECD 2000, p 41).

Products: "Products, also called 'goods and services', are the result of production; they are exchanged and used for various purposes: as inputs in the production of other goods and services, as final consumption or for investment" (SNA Glossary, OECD 2000, p 41).

Pulp logs: These are considered low-grade logs, generally derived from smaller branches and production thinnings. They are first chipped, then reduced to wood pulp for the production of newsprint and other forestry products.

Re-exports: Exported goods exported in the same condition as they were imported, and imported goods, which have undergone operations such as repair, repacking or bottling, leaving them essentially unchanged before exporting. Re-exports include less than 50 percent New Zealand content by value.

Residuals: See forestry residuals.

Roundwood equivalent: MAF defines 'roundwood equivalent' in New Zealand as *"*a theoretical measurement that gives the total amount of roundwood necessary for the production of one unit of a stated forestry product with existing technology, as if only roundwood were used as a raw material. No allowance is made for the use of residuals in the manufacture of the product". (Dennis, 2001). See section C.2.2.1: Defining Roundwood Equivalent for further detail.

Roundwood products: MAF defines roundwood products as those that resemble the logs as they are removed from the forest and are used without further conversion. MAF identifies three roundwood products in New Zealand: poles, posts and firewood.

Saw logs: Saw logs tend to be high-grade logs with good structural and/or appearance qualities of substantial length. They are used by sawmills in the production of sawn timber.

Small logs: These are logs that are too small in either diameter or length to be of use to the saw mill or veneer industries. They are mainly used in the production of fibreboard and particleboard. Some small logs are, however, not further processed and are sold as roundwood products such as poles and fence posts.

Supply and use tables: "Supply and use tables are in the form of matrices that record how supplies of different kinds of goods and services originate from domestic industries and imports, and how those supplies are allocated between various intermediate or final uses, including exports" (SNA Glossary, OECD 2000, p 49).

System of Environmental and Economic Accounts (SEEA): The SEEA was developed by the United Nations Statistical Division as a satellite system to the System of National Accounts (SNA), for the incorporation of environmental concerns (environmental costs, benefits and assets) in the national accounts. The SEEA is intended to be a system with global application and standards, suitable for all countries and all aspects of the environment.

System of National Accounts (SNA): 'An international accounting framework consisting of a coherent, consistent and integrated set of macro-economic accounts, balance sheets and tables based on a set of internationally agreed concepts, definitions, classifications and accounting rules. It provides a comprehensive accounting framework within which economic data can be compiled and presented in a format that is designed for the purposes of economic analysis, and decision and policy making' (System of National Accounts, 1993).

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G. Appendix

Appendix 1: System of Environmental and Economic Accounts Asset Classification

EA.1 Natural Resources

EA.11 Mineral and energy resources
- EA.111 Fossil fuels (cubic metres, tonnes, tonnes of oil equivalent, joules)
- EA.112 Metallic minerals (tonnes)
- EA.113 Non-metallic minerals (tonnes)

EA.12 Soil resources (cubic metres, tonnes)
- EA.121 Agricultural
- EA.122 Non-agricultural

EA.13 Water resources (cubic metres)
- EA.131 Surface water
  - EA.1311 In artificial reservoirs
    - EA.13111 For human use
    - EA.13112 For agricultural use
    - EA.13113 For electric power generation
    - EA.13114 For mixed use
  - EA.1312 In natural waterbodies
    - EA.13121 Lakes
    - EA. 13122 Rivers and streams
- EA.132 Groundwater
  - EA.1141 Aquifers
  - EA.1142 Other groundwater

EA.14 Biological resources
- EA.141 Timber resources (cubic metres, hectares)
  - EA.1411 Cultivated
  - EA.1412 Non-cultivated
- EA.142 Crop and plant resources, other than timber (cubic metres, tonnes, number)
  - EA.1421 Cultivated
    - EA.14211 Yielding repeat products (vineyards, orchards, etc.)
    - EA.14212 Yielding one-time harvests (crops, etc.)
  - EA.1422 Non-cultivated
- EA.143 Aquatic resources (tonnes, number)
  - EA.1431 Cultivated
  - EA.1432 Non-cultivated
- EA.144 Animal resources, other than aquatic (number)
  - EA.1441 Cultivated
    - EA.14411 Livestock for breeding purposes
    - EA.14412 Livestock for slaughter
  - EA.1442 Non-cultivated

EA.2 Land and surface water (hectares)

Of which, recreational land

EA.21 Land underlying buildings and structures
- EA.211 In urban areas
  - EA.2111 For dwellings
  - EA.2112 For non-residential buildings
  - EA.2113 For transportation and utilities
- EA.212 Outside urban areas
  - EA.2121 For dwellings
    - EA.21211 Farm
    - EA.21212 Non-farm
  - EA.2122 For non-residential buildings
    - EA.21221 Farm
    - EA.21222 Non-farm
  - EA.2123 For transportation and utilities
    - EA.21231 Roads
    - EA.21232 Railways
    - EA.21233 Electric power grids
    - EA.21234 Pipelines

EA.22 Agricultural land and associated surface water
- EA.221 Cultivated land
  - EA.2211 For temporary crops
    - Of which, drained
    - Of which, irrigated
  - EA.2212 For permanent plantations
    - Of which, drained
    - Of which, irrigated
  - EA.2213 For kitchen gardens
  - EA.2214 Temporarily fallow land
- EA.222 Pasture land
  - EA.2221 Improved
  - EA.2222 Natural
- EA.223 Other agricultural land

EA.23 Wooded land and associated surface water
- EA.231 Cultivated timber plantations
- EA.232 Non-cultivated wooded land
  - EA.2321 Previously harvested
  - EA.2322 Not previously harvested

EA.24 Major waterbodies
- EA.241 Lakes
- EA.242 Rivers

EA.243 Wetlands
- EA.244 Artificial reservoirs
  - EA.2441 For drinking water
  - EA.2442 For irrigation
  - EA.2443 For electric power generation
  - EA.2444 For multiple purposes

EA.25 Other land

- EA.251 Prairie and grassland
- EA.252 Tundra
- EA.253 Sparsely vegetated/barren land
- EA.254 Permanent snow and ice

EA.3 Ecosystems

EA.31 Terrestrial ecosystems

- EA.311 Urban ecosystems
- EA.312 Agricultural ecosystems
- EA.313 Forest ecosystems
- EA.314 Prairie and grassland ecosystems
- EA.315 Tundra ecosystems
- EA.316 Dryland ecosystems
- EA.317 Other terrestrial ecosystems

EA.32 Aquatic ecosystems

- EA.321 Marine ecosystems
- EA.322 Coastal ecosystems
- EA.323 Riverine ecosystems
- EA.324 Lacustrine ecosystems
- EA.325 Other aquatic ecosystems

EA.33 Atmospheric systems

EA.M Memorandum item – Intangible environmental assets

- EA.M1 Mineral exploration
- EA.M2 Transferable licences and concessions for the exploitation of natural resources
- EA.M3 Tradable permits allowing the emission of residuals
- EA.M4 Other intangible non-produced environmental assets

Appendix 2: ANZIND 1996 V5.0

(Selected codes have been expanded, with industries individually identified in industry breakdown tables highlighted.)

A. Agriculture, Forestry and Fishing
- A.01 Horticulture and fruit growing
- A.02 Livestock and cropping farming
  - A.021 Livestock and cropping farming
    - A.0211 Mixed livestock and cropping
    - A.0214 Sheep and beef cattle farming
- A.03 Dairy cattle farming
  - A.031 Dairy cattle farming
- A.04 Other farming
- A.05 Services to agriculture, hunting and trapping
- A.06 Forestry and logging
  - A.061 Forestry and forestry services
    - A.0611 Forestry
    - A.0612 Services to forestry
  - A.062 Logging
- A.07 Fishing

B. Mining

C. Manufacturing
- C.01 Meat and meat product manufacturing
- C.02 Dairy product manufacturing
- C.03 Other food manufacturing
- C.04 Beverage and malt manufacturing
- C.05 Tobacco product manufacturing
- C.06 Textile and apparel manufacturing
- C.07 Wood product manufacturing
  - C.071 Wood product manufacturing
    - C.0711 Log sawmilling and timber dressing
    - C.0712 Other wood product manufacturing
- C.08 Paper and paper product manufacturing
  - C.081 Pulp, paper and paperboard manufacturing
    - C.0811 Pulp, paper and paperboard manufacturing
  - C.082 Paper and paper board containers
    - C.0821 Paper and paper board containers
- C.09 Printing, publishing and recorded media
  - C.091 Printing, publishing and recorded media
    - C.0911 Printing and services to printing
    - C.0912 Publishing, recorded media manufacturing and publishing
- C.10 Petroleum and industrial chemical manufacturing
- C.11 Rubber, plastic and other chemical product manufacturing
- C.12 Non-metallic mineral product manufacturing
- C.13 Basic metal manufacturing
- C.14 Structural, sheet and fabricated metal product manufacturing
- C.15 Transport equipment manufacturing
- C.16 Machinery and equipment manufacturing
- C.17 Furniture and other manufacturing

C.171 Prefabricated building manufacturing
C.1711 Prefabricated building manufacturing
C.172 Furniture manufacturing
C.1721 Furniture manufacturing
C.173 Other manufacturing nec

D. Electricity, Gas and Water Supply

E. Construction
E.01 Construction
E.011 Residential building construction
E.0111 Residential building construction
E.012 Owner builders
E.0121 Owner builders
E.013 Non-residential building construction
E.0131 Non-residential building construction
E.014 Non-building construction
E.0141 Non-building construction
E.015 Construction trade services

F. Wholesale Trade
F.01 Wholesale trade
F.011 Unprocessed primary products wholesaling
F.012 Petroleum, metal and chemical product wholesaling
F.013 Builders supplies wholesaling
F.0131 Builders supplies wholesaling
F.014 Machinery and equipment wholesaling
F.015 Motor vehicle wholesaling
F.016 Food, drink and tobacco wholesaling
F.017 Personal and household goods wholesaling

G. Retail Trade
H. Accommodation, Restaurants and Bars
I. Transport and Storage
J. Communication Services
K. Finance and Insurance
L. Property and Business Services
L01 Real estate
L02 Ownership of owner-occupied dwellings
L021 Ownership of owner-occupied dwellings
L03 Equipment hire and investors in other property
L04 Business services

M. Government Administration, Defence, Public Order and Safety Services
N. Education
O. Health and Community Services
P. Cultural and Recreational Services
Q. Personal and Other Services
X. Expenditure on GDP
Z. Unallocated Production and Taxes on Production and Imports

Appendix 3: Concordance between NA96CC and MAF Forestry Product Commodities

National Accounts Commodity Code (1966)	MAF Forestry Product Commodities
wood in the rough, untreated wood in the rough, treated	logs and poles
wood, sawn or chipped lengthways	sawn timber
veneer sheets, sheets for plywood	veneer
boards and panels	plywood particleboard fibreboard
pulp, paper and paperboard	chemical pulp mechanical pulp newsprint paper and paperboard

H. Tables

Please note that the years in the tables refer to years ending 31 March. For example, figures for the year 1997 cover the period 1 April 1996 to 31 March 1997.

Table symbols

-	nil or zero
--	figure too small to be expressed
..	figures not available
…	not applicable

Summary Table: Supply / Use of Forestry Products and Forestry Residuals (in Cubic Metres of Roundwood Equivalent and Dollars, March Years)

Forestry Products	Units	1996	1997	1998	1999
Logs and Poles	m^3 RE	16,629,984	15,958,839	16,741,369	16,633,978
	$000	1,733,307	1,692,337	1,582,937	1,498,374
Wood Chips (chipped logs)	m^3 RE	3,608,170	4,299,387	5,152,721	4,603,485
	$000	213,539	196,259	229,796	210,845
Sawn Timber	m^3 RE	5,452,770	5,654,574	5,948,408	6,007,243
	$000	1,602,301	1,646,361	1,601,001	1,485,614
Veneer	m^3 RE	404,755	480,847	463,783	458,309
	$000	49,012	91,097	86,421	88,399
Plywood	m^3 RE	344,277	378,582	400,304	450,632
	$000	256,871	318,421	279,737	309,359
Particleboard	m^3 RE	242,665	354,935	299,765	258,408
	$000	133,141	220,603	153,831	129,612
Fibreboard	m^3 RE	954,375	814,383	933,820	919,047
	$000	597,756	576,145	546,187	525,169
Chemical Pulp	m^3 RE	3,087,409	2,499,276	2,574,408	2,164,309
	$000	445,656	335,491	320,876	346,989
Mechanical Pulp	m^3 RE	1,405,464	1,449,929	1,473,424	1,511,604
	$000	256,872	223,321	197,424	195,890
Newsprint	m^3 RE	1,174,376	982,120	999,979	1,000,783
	$000	427,877	325,272	369,169	396,425
Other Paper and Paperboard	m^3 RE	2,808,515	2,859,518	3,061,246	2,818,321
	$000	820,810	746,143	749,946	791,274

Forestry Products	Units	1996	1997	1998	1999
Wood Chip Residuals	m^3 RE	1,514,614	1,408,144	1,019,316	795,712
Black Liquor	m^3 RE	..	..	..	..
Other Chemical Residuals	m^3 RE	..	..	..	..

1996 Supply and Use Summary Table

Supply of Forestry Products		Production	Imports	Total
Logs and Poles	m^3 RE	16,628,106	1,878	16,629,984
	$000	1,731,777	1,530	1,733,307
Wood Chips (chipped logs)	m^3 RE	3,608,044	126	3,608,170
	$000	213,523	16	213,539
Sawn Timber	m^3 RE	5,376,250	76,520	5,452,770
	$000	1,566,439	35,862	1,602,301
Veneer	m^3 RE	400,289	4,466	404,755
	$000	46,795	2,217	49,012
Plywood	m^3 RE	332,196	12,081	344,277
	$000	247,622	9,249	256,871
Particleboard	m^3 RE	238,623	4,042	242,665
	$000	131,568	1,573	133,141
Fibreboard	m^3 RE	948,029	6,346	954,375
	$000	594,155	3,601	597,756
Chemical Pulp	m^3 RE	3,021,073	66,336	3,087,409
	$000	427,883	17,773	445,656
Mechanical Pulp	m^3 RE	1,405,464	-	1,405,464
	$000	256,872	-	256,872
Newsprint	m^3 RE	1,174,308	68	1,174,376
	$000	427,842	35	427,877
Other Paper and Paperboard	m^3 RE	2,001,117	807,398	2,808,515
	$000	438,600	382,210	820,810
Supply of Forestry Residuals		**Production**	**Imports**	**Total**
Wood Chip Residuals	m^3 RE	1,514,614	0	1,514,614
Black Liquor	m^3 RE	..	..	..
Other Chemical Residuals	m^3 RE	...	...	...

Use of Forestry Products		Consumption & Stocks	Exports	Total
Logs and Poles	m^3 RE	11,021,200	5,608,784	16,629,984
	$000	1,032,236	701,071	1,733,307
Wood Chips (chipped logs)	m^3 RE	2,856,066	752,104	3,608,170
	$000	152,534	61,005	213,539
Sawn Timber	m^3 RE	3,631,752	1,821,019	5,452,770
	$000	1,205,059	397,242	1,602,301
Veneer	m^3 RE	390,385	14,370	404,755
	$000	39,990	9,022	49,012
Plywood	m^3 RE	77,678	266,599	344,277
	$000	155,469	101,403	256,871
Particleboard	m^3 RE	73,262	169,403	242,665
	$000	74,328	58,814	133,141
Fibreboard	m^3 RE	405,324	549,051	954,375
	$000	397,457	200,300	597,756
Chemical Pulp	m^3 RE	1,829,242	1,258,167	3,087,409
	$000	132,468	313,188	445,656
Mechanical Pulp	m^3 RE	773,506	631,958	1,405,464
	$000	84,199	172,673	256,872
Newsprint	m^3 RE	450,996	723,380	1,174,376
	$000	169,739	258,138	427,877
Other Paper and Paperboard	m^3 RE	2,369,960	438,555	2,808,515
	$000	680,521	140,289	820,810
Supply of Forestry Residuals		**Production**	**Imports**	**Total**
Wood Chip Residuals	m^3 RE	1,514,614	0	1,514,614
Black Liquor	m^3 RE	..	..	..
Other Chemical Residuals	m^3 RE	...	...	...

1997 Supply and Use Summary Table

Supply of Forestry Products		Production	Imports	Total
Logs and Poles	m^3 RE	15,955,952	2,887	15,958,839
	$000	1,690,796	1,541	1,692,337
Wood Chips (chipped logs)	m^3 RE	4,298,517	870	4,299,387
	$000	196,214	45	196,259
Sawn Timber	m^3 RE	5,566,241	88,334	5,654,575
	$000	1,611,259	35,102	1,646,361
Veneer	m^3 RE	475,024	5,824	480,848
	$000	89,098	1,999	91,097
Plywood	m^3 RE	366,847	11,735	378,582
	$000	309,627	8,794	318,421
Particleboard	m^3 RE	350,982	3,953	354,935
	$000	219,119	1,484	220,603
Fibreboard	m^3 RE	805,247	9,137	814,384
	$000	571,433	4,712	576,145
Chemical Pulp	m^3 RE	2,420,063	79,213	2,499,276
	$000	325,205	10,286	335,491
Mechanical Pulp	m^3 RE	1,449,912	17	1,449,929
	$000	223,290	31	223,321
Newsprint	m^3 RE	975,733	6,387	982,120
	$000	323,113	2,159	325,272
Other Paper and Paperboard	m^3 RE	1,937,510	922,009	2,859,519
	$000	385,771	360,372	746,143
Supply of Forestry Residuals		**Production**	**Imports**	**Total**
Wood Chip Residuals	m^3 RE	1,408,144	0	1,408,144
Black Liquor	m^3 RE	..	..	..
Other Chemical Residuals	m^3 RE	...	...	...

Use of Forestry Products		Consumption & Stocks	Exports	Total
Logs and Poles	m^3 RE	10,490,297	5,468,542	15,958,839
	$000	1,053,302	639,035	1,692,337
Wood Chips (chipped logs)	m^3 RE	3,691,420	607,967	4,299,387
	$000	158,222	38,037	196,259
Sawn Timber	m^3 RE	3,792,485	1,862,088	5,654,575
	$000	1,261,904	384,457	1,646,361
Veneer	m^3 RE	466,253	14,594	480,848
	$000	84,272	6,825	91,097
Plywood	m^3 RE	188,688	189,894	378,582
	$000	205,876	112,545	318,421
Particleboard	m^3 RE	183,480	171,455	354,935
	$000	146,258	74,345	220,603
Fibreboard	m^3 RE	279,180	535,203	814,384
	$000	308,785	267,360	576,145
Chemical Pulp	m^3 RE	1,310,990	1,188,287	2,499,276
	$000	123,202	212,289	335,491
Mechanical Pulp	m^3 RE	717,225	732,704	1,449,929
	$000	76,556	146,765	223,321
Newsprint	m^3 RE	338,696	643,424	982,120
	$000	153,306	171,966	325,272
Other Paper and Paperboard	m^3 RE	2,384,338	475,180	2,859,519
	$000	644,336	101,807	746,143
Supply of Forestry Residuals		**Production**	**Imports**	**Total**
Wood Chip Residuals	m^3 RE	1,408,144	0	1,408,144
Black Liquor	m^3 RE	..	..	..
Other Chemical Residuals	m^3 RE	...	...	...

1998 Supply and Use Summary Table

Supply of Forestry Products		Production	Imports	Total
Logs and Poles	m^3 RE	16,738,796	2,573	16,741,369
	$000	1,581,277	1,660	1,582,937
Wood Chips (chipped logs)	m^3 RE	5,152,694	27	5,152,721
	$000	229,774	22	229,796
Sawn Timber	m^3 RE	5,881,460	66,948	5,948,408
	$000	1,566,579	34,422	1,601,001
Veneer	m^3 RE	461,630	2,153	463,783
	$000	83,846	2,575	86,421
Plywood	m^3 RE	384,577	15,726	400,304
	$000	268,567	11,170	279,737
Particleboard	m^3 RE	294,593	5,173	299,765
	$000	152,172	1,659	153,831
Fibreboard	m^3 RE	920,018	13,803	933,820
	$000	540,193	5,994	546,187
Chemical Pulp	m^3 RE	2,505,931	68,478	2,574,408
	$000	310,924	9,952	320,876
Mechanical Pulp	m^3 RE	1,473,424	-	1,473,424
	$000	197,424	-	197,424
Newsprint	m^3 RE	999,604	375	999,979
	$000	369,011	158	369,169
Other Paper and Paperboard	m^3 RE	1,910,102	1,151,144	3,061,246
	$000	328,484	421,462	749,946
Supply of Forestry Residuals		**Production**	**Imports**	**Total**
Wood Chip Residuals	m^3 RE	1,019,316	0	1,019,316
Black Liquor	m^3 RE	..	..	..
Other Chemical Residuals	m^3 RE	...	...	...

Use of Forestry Products		Consumption & Stocks	Exports	Total
Logs and Poles	m^3 RE	11,142,057	5,599,312	16,741,369
	$000	946,466	636,471	1,582,937
Wood Chips (chipped logs)	m^3 RE	4,456,139	696,582	5,152,721
	$000	187,221	42,575	229,796
Sawn Timber	m^3 RE	3,772,127	2,176,282	5,948,408
	$000	1,142,423	458,578	1,601,001
Veneer	m^3 RE	452,754	11,028	463,783
	$000	81,095	5,326	86,421
Plywood	m^3 RE	190,063	210,241	400,304
	$000	171,854	107,883	279,737
Particleboard	m^3 RE	162,589	137,177	299,765
	$000	92,849	60,982	153,831
Fibreboard	m^3 RE	343,851	589,970	933,820
	$000	391,125	155,062	546,187
Chemical Pulp	m^3 RE	1,412,596	1,161,812	2,574,408
	$000	106,168	214,708	320,876
Mechanical Pulp	m^3 RE	817,234	656,190	1,473,424
	$000	68,625	128,799	197,424
Newsprint	m^3 RE	328,777	671,202	999,979
	$000	150,625	218,544	369,169
Other Paper and Paperboard	m^3 RE	2,420,857	640,390	3,061,246
	$000	605,913	144,033	749,946
Supply of Forestry Residuals		**Production**	**Imports**	**Total**
Wood Chip Residuals	m^3 RE	1,019,316	0	1,019,316
Black Liquor	m^3 RE	..	..	..
Other Chemical Residuals	m^3 RE	...	...	...

1999 Supply and Use Summary Table

Supply of Forestry Products		Production	Imports	Total
Logs and Poles	m^3 RE	16,629,791	4,187	16,633,978
	$000	1,496,105	2,269	1,498,374
Wood Chips (chipped logs)	m^3 RE	4,603,397	88	4,603,485
	$000	210,789	56	210,845
Sawn Timber	m^3 RE	5,938,499	68,743	6,007,242
	$000	1,446,455	39,159	1,485,614
Veneer	m^3 RE	457,320	989	458,309
	$000	86,065	2,334	88,399
Plywood	m^3 RE	436,850	13,781	450,631
	$000	298,129	11,230	309,359
Particleboard	m^3 RE	254,354	4,055	258,409
	$000	128,397	1,215	129,612
Fibreboard	m^3 RE	901,010	18,038	919,048
	$000	516,993	8,176	525,169
Chemical Pulp	m^3 RE	2,070,553	93,757	2,164,310
	$000	330,851	16,138	346,989
Mechanical Pulp	m^3 RE	1,511,414	190	1,511,604
	$000	195,856	34	195,890
Newsprint	m^3 RE	1,000,601	182	1,000,783
	$000	396,368	57	396,425
Other Paper and Paperboard	m^3 RE	1,521,225	127,096	2,818,321
	$000	323,302	467,972	791,274
Supply of Forestry Residuals		**Production**	**Imports**	**Total**
Wood Chip Residuals	m^3 RE	795,712	0	795,712
Black Liquor	m^3 RE	..	..	..
Other Chemical Residuals	m^3 RE	...	...	...

Use of Forestry Products		Consumption & Stocks	Exports	Total
Logs and Poles	m^3 RE	11,826,147	4,807,831	16,633,978
	$000	1,069,357	429,017	1,498,374
Wood Chips (chipped logs)	m^3 RE	3,845,952	757,533	4,603,485
	$000	163,302	47,543	210,845
Sawn Timber	m^3 RE	3,725,145	2,282,099	6,007,242
	$000	943,977	541,637	1,485,614
Veneer	m^3 RE	451,831	6,478	458,309
	$000	84,002	4,397	88,399
Plywood	m^3 RE	217,494	233,138	450,631
	$000	197,121	112,238	309,359
Particleboard	m^3 RE	151,356	107,052	258,409
	$000	89,820	39,792	129,612
Fibreboard	m^3 RE	282,503	636,545	919,048
	$000	375,579	149,590	525,169
Chemical Pulp	m^3 RE	1,036,845	1,127,464	2,164,310
	$000	100,014	246,975	346,989
Mechanical Pulp	m^3 RE	871,782	639,822	1,511,604
	$000	66,323	129,567	195,890
Newsprint	m^3 RE	344,637	656,146	1,000,783
	$000	144,819	251,606	396,425
Other Paper and Paperboard	m^3 RE	2,126,042	692,279	2,818,321
	$000	604,940	186,334	791,274
Supply of Forestry Residuals		**Production**	**Imports**	**Total**
Wood Chip Residuals	m^3 RE	795,712	0	795,712
Black Liquor	m^3 RE	..	..	..
Other Chemical Residuals	m^3 RE	...	...	...

Supplementary Table: Selected Forestry Product Exports by Country for the 2000 March Year

	Logs				Sawn Timber			
	Volume		Value		Volume		Value	
Country of Destination	$000m^3$ RE	Percentage of Product Total	$000	Percentage of Product Total	$000m^3$ RE	Percentage of Product Total	$000	Percentage of Product Total
Australia	180	--	84	0.01	665,329	22.00	214,110	25.92
China	1,007,993	13.65	93,308	13.07	186,488	6.17	36,172	4.38
Hong Kong	8,078	0.11	836	0.12	86,559	2.86	18,157	2.20
India	206,505	2.80	19,180	2.69	-	-	-	-
Indonesia	127	--	20	--	23,403	0.77	5,837	0.71
Japan	1,457,591	19.74	169,596	23.75	459,525	15.19	84,039	10.17
Korea, Republic	4,256,641	57.66	386,176	54.09	112,641	3.72	12,386	1.50
Malaysia	6,957	0.09	1,208	0.17	7,003	0.23	1,377	0.17
Pacific Islands	2,143	0.03	425	0.06	58,332	1.93	15,529	1.88
Philippines	214,731	2.91	23,259	3.26	59,406	1.96	11,159	1.35
Singapore	-	-	-	-	11,117	0.37	2,416	0.29
Taiwan	81,059	1.10	7,895	1.11	273,012	9.03	31,241	3.78
Thailand	50,569	0.68	4,670	0.65	95,728	3.17	10,536	1.28
UAE	35,199	0.48	2,965	0.42	-	-	-	-
USA	10,550	0.14	1,573	0.22	936,461	30.96	371,881	45.02
Vietnam	44,228	0.60	2,730	0.38	37,961	1.26	5,273	0.64
Other countries	154	--	90	0.01	11,577	0.38	5990	0.73
Total	**7,382,705**	100	**714,015**	100	**3,024,542**	100	**826,098**	100

	Plywood				Particleboard			
	Volume		Value		Volume		Value	
Country of Destination	$000m^3$ RE	Percentage of Product Total	$000	Percentage of Product Total	$000m^3$ RE	Percentage of Product Total	$000	Percentage of Product Total
Australia	67,904	36.75	33,744	23.18	54,893	38.17	12,852	20.64
China	-	-	-	-	360	0.25	77	0.12
Hong Kong	1,908	1.03	594	0.41	177	0.12	43	0.07
India	-	-	-	-	-	-	-	-
Indonesia	-	-	-	-	-	-	-	-
Japan	101,078	54.70	105,152	72.23	86,616	60.23	48,620	78.07
Korea, Republic	-	-	-	-	-	-	-	-
Malaysia	-	-	-	-	-	-	-	-
Pacific Islands	7,394	4.00	3,476	2.39	737	0.51	306	0.49
Philippines	-	-	-	-	300	0.21	101	0.16
Singapore	-	-	-	-	132	0.09	63	0.10
Taiwan	--	--	35	0.02	62	0.04	39	0.06
Thailand	-	-	-	-	-	-	-	-
UAE	-	-	-	-	-	-	-	-
USA	6,220	3.37	2,384	1.64	3	--	3	--
Vietnam	-	-	-	-	-	-	-	-
Other countries	281	0.15	200	0.14	528	0.37	174	0.28
Total	**184,785**	100	**145,584**	100	**143,807**	100	**62,278**	100

	Fibreboard				Chemical Pulp			
	Volume		Value		Volume		Value	
Country of Destination	$000m^3$ RE	Percentage of Product Total	$000	Percentage of Product Total	$000m^3$ RE	Percentage of Product Total	$000	Percentage of Product Total
Australia	105,771	11.16	30,060	10.31	448,516	26.53	112,764	29.97
China	119,088	12.57	33,244	11.40	440,427	26.06	93,113	24.74
Hong Kong	25,683	2.71	7,149	2.45	-	-	-	-
India	6,887	0.73	894	0.31	2,743	0.16	886	0.24
Indonesia	33,909	3.58	11,684	4.01	109,156	6.46	22,619	6.01
Japan	325,037	34.31	111,789	38.35	42,401	2.51	9,272	2.46
Korea, Republic	119,277	12.59	27,733	9.51	262,044	15.50	56,851	15.11
Malaysia	8,124	0.86	2,336	0.80	51,096	3.02	13,169	3.50
Pacific Islands	10,073	1.06	3,807	1.31	4,198	0.25	927	0.25
Philippines	13,478	1.42	4,136	1.42	12,280	0.73	3,161	0.84
Singapore	6,207	0.66	1,394	0.48	15,501	0.92	3,045	0.81
Taiwan	46,739	4.93	13,171	4.52	130,896	7.74	25,364	6.74
Thailand	228	0.02	79	0.03	64,932	3.84	13,547	3.60
UAE	-	-	-	-	-	-	-	-
USA	121,740	12.85	42,791	14.68	58,891	3.48	11,646	3.09
Vietnam	3,530	0.37	852	0.29	29,356	1.74	5,854	1.56
Other countries	1,626	0.17	407	0.14	17,891	1.06	4,076	1.08
Total	**947,394**	100	**291,527**	100	**1,690,326**	100	**376,293**	100

	Mechanical Pulp			
	Volume		Value	
Country of Destination	$000m^3$ RE	Percentage of Product Total	$000	Percentage of Product Total
Australia	886	0.12	298	0.21
China	140,478	19.58	40,146	27.62
Hong Kong	-	-	-	-
India	382	0.05	96	0.07
Indonesia	39,960	5.57	12,505	8.60
Japan	477,272	66.52	75,053	51.64
Korea, Republic	15,452	2.15	4,787	3.29
Malaysia	-	-	-	-
Pacific Islands	-	-	-	-
Philippines	282	0.04	48	0.03
Singapore	-	-	-	-
Taiwan	26,328	3.67	7,538	5.19
Thailand	1,250	0.17	277	0.19
UAE	-	-	-	-
USA	-	-	-	-
Vietnam	11,534	1.61	3,366	2.32
Other countries	3,680	0.51	1,216	0.84
Total	**717,504**	100	**145,329**	100

1996 Supply and Use Industry Breakdown Table

Supply of Forestry Products (cubic metres of roundwood equivalent)

COMMODITIES / Forestry Products		OUTPUT BY INDUSTRIES - (ANZIND96 V5.0)													TOTAL Production	IMPORTS	TOTAL SUPPLY
		Sheep & beef cattle farming	Dairy cattle farming	Forestry	Other agriculture forestry and logging	Log sawmilling and timber dressing	Other wood product mfg	Pulp paper and paperboard mfg	Paper and paperboard containers	Printing and services to printing	Other manufacturing	Non-building construction	Builders supplies wholesaling	All Other Industries			
Logs and Poles	m3 RE	13,810	2,390	15,766,613	426,471	-	-	-	-	-	-	-	-	418,823	16,628,106	1,878	**16,629,984**
	$000	1,439	249	1,642,008	44,439	-	-	-	-	-	-	-	-	43,642	1,731,777	1,530	**1,733,307**
Wood Chips (chipped logs)	m3 RE	-	-	-	-	3,608,044	-	-	-	-	-	-	-	-	3,608,044	126	**3,608,170**
	$000	-	-	-	-	213,523	-	-	-	-	-	-	-	-	213,523	16	**213,539**
Sawn Timber	m3 RE	-	-	27,639	7,407	4,492,390	5,636	335,832	-	-	16,296	30,921	244,773	215,356	5,376,250	76,520	**5,452,770**
	$000	-	-	8,053	2,158	1,308,918	1,642	97,848	-	-	4,748	9,009	71,317	62,746	1,566,439	35,862	**1,602,301**
Veneer	m3 RE	-	-	-	-	-	400,289	-	-	-	-	-	-	-	400,289	4,466	**404,755**
	$000	-	-	-	-	-	46,795	-	-	-	-	-	-	-	46,795	2,217	**49,012**
Plywood	m3 RE	-	-	-	-	3,146	325,370	-	-	-	3,680	-	-	-	332,196	12,081	**344,277**
	$000	-	-	-	-	2,345	242,534	-	-	-	2,743	-	-	-	247,622	9,249	**256,871**
Particleboard	m3 RE	-	-	-	-	913	236,647	-	-	-	1,063	-	-	-	238,623	4,042	**242,665**
	$000	-	-	-	-	*503*	130,479	-	-	-	586	-	-	-	131,568	1,573	**133,141**
Fibreboard	m3 RE	-	-	-	-	6,233	915,387	-	19,118	-	7,291	-	-	-	948,029	6,346	**954,375**
	$000	-	-	-	-	4,057	572,090	-	13,260	-	4,748	-	-	-	594,155	3,601	**597,756**
Chemical Pulp	m3 RE	-	-	-	-	-	-	3,021,073	-	-	-	-	-	-	3,021,073	66,336	**3,087,409**
	$000	-	-	-	-	-	-	427,883	-	-	-	-	-	-	427,883	17,773	**445,656**
Mechanical Pulp	m3 RE	-	-	-	-	-	-	1,405,464	-	-	-	-	-	-	1,405,464	-	**1,405,464**
	$000	-	-	-	-	-	-	256,872	-	-	-	-	-	-	256,872	-	**256,872**
Newsprint	m3 RE	-	-	-	-	-	-	1,174,308	-	-	-	-	-	-	1,174,308	68	**1,174,376**
	$000	-	-	-	-	-	-	427,842	-	-	-	-	-	-	427,842	35	**427,877**
Other Paper & Paperboard	m3 RE	-	-	-	-	-	-	1,214,170	753,233	-	31,499	-	-	2,215	2,001,117	807,398	**2,808,515**
	$000	-	-	-	-	-	-	266,119	165,092	-	6,904	-	-	485	438,600	382,210	**820,810**
TOTAL	m3 RE	13,810	2,390	15,794,252	433,878	8,110,726	1,883,329	7,150,846	772,351	-	59,829	30,921	244,773	636,394	35,133,498	979,262	**36,112,760**
	$000	1,439	249	1,650,061	46,597	1,529,346	993,540	1,476,564	178,352	-	19,729	9,009	71,317	106,873	6,083,076	454,066	**6,537,142**

Use of Forestry Products (cubic metres of roundwood equivalent)

COMMODITIES / Forestry Products		INTERMEDIATE CONSUMPTION BY INDUSTRIES - (ANZIND96 V5.0)																								
		Sheep & beef cattle farming	Dairy cattle farming	Forestry	Other agriculture forestry and logging	Log sawmilling and timber dressing	Other wood product mfg	Pulp paper and paperboard mfg	Paper and paperboard containers	Printing and services to printing	Publishing recorded media mfg and publishing	Furniture mfg	Other mfg	Residential building construction	Non-residential construction	Non-building construction	Other construction	Builders supplies wholesaling	Ownership of owner-occupied dwellings	All Other Industries	Total Intermediate Consumption	Total Household Consumption	Changes in Capital & Inventories	TOTAL DOMESTIC USE	EXPORTS	TOTAL USE
Logs and Poles	m3 RE	42,280	51,640	1,360	110,240	4,855,210	1,301,848	3,833,239	-	-	-	-	-	82,292	-	-	-	548,611	-	27,800	10,854,520	166,680	-	11,021,200	5,608,784	**16,629,984**
	$000	9,796	11,968	311	25,555	561,150	150,464	140,078	-	-	-	-	-	12,513	-	-	-	78,500	-	6,442	996,777	35,459		1,032,236	701,071	**1,733,307**
Wood Chips (chipped logs)	m3 RE	-	-	-	-	-	474,842	2,381,224	-	-	-	-	-	-	-	-	-	-	-	-	2,856,066	-	-	2,856,066	752,104	**3,608,170**
	$000	-	-	-	-	-	25,360	127,174	-	-	-	-	-	-	-	-	-	-	-	-	152,534	-	-	152,534	61,005	**213,539**
Sawn Timber	m3 RE	-	-	259	84	33,846	1,181,705	125,730	-	-	-	222,628	198,811	822,750	708,969	188,471	32,716	-	-	129,717	3,645,686	-	- 13,934	3,631,752	1,821,019	**5,452,771**
	$000	-	-	86	28	11,231	392,116	41,720	-	-	-	73,873	65,970	273,007	235,252	62,539	10,856			43,043	1,209,721		- 4,662	1,205,059	397,242	**1,602,301**
Veneer	m3 RE	-	-	-	-	-	110,910	-	-	-	-	279,475	-	-	-	-	-	-	-	-	390,385	-	-	390,385	14,370	**404,755**
	$000	-	-	-	-	-	24,722	-	-	-	-	15,268	-	-	-	-	-	-	-	-	39,990	-	-	39,990	9,022	**49,012**
Plywood	m3 RE	94	115	-	82	-	-	-	-	-	-	5,367	3,117	36,154	27,999	-	548	-	797	262	74,535	-	3,143	77,678	266,599	**344,277**
	$000	188	230	-	164	-	-	-	-	-	-	10,742	6,239	72,360	56,039		1,097	-	1,595	524	149,178		6,291	155,469	101,403	**256,872**
Particleboard	m3 RE	92	115	-	82	-	-	-	-	-	-	5,321	2,357	35,836	27,754	-	542	-	790	258	73,147	-	115	73,262	169,403	**242,665**
	$000	93	117	-	83	-	-	-	-	-	-	5,402	2,393	36,380	28,175		550	-	802	262	74,257		71	74,328	58,814	**133,142**
Fibreboard	m3 RE	534	653	-	463	-	-	-	6,311	-	-	21,665	2,433	205,187	158,904	-	3,110	-	4,527	1,486	405,273	-	51	405,324	549,051	**954,375**
	$000	524	640	-	454	-	-	-	6,189			21,244	2,386	201,204	155,820		3,050	-	4,439	1,457	397,407		50	397,457	200,300	**597,757**
Chemical Pulp	m3 RE	-	-	-	-	-	-	1,818,520	10,722	-	-	-	-	-	-	-	-	-	-	-	1,829,242	-	-	1,829,242	1,258,167	**3,087,409**
	$000	-	-	-	-	-	-	131,696	772	-	-	-	-	-	-	-	-	-	-	-	132,468	-	-	132,468	313,188	**445,656**
Mechanical Pulp	m3 RE	-	-	-	-	-	-	773,506	-	-	-	-	-	-	-	-	-	-	-		773,506	-	-	773,506	631,958	**1,405,464**
	$000	-	-	-	-	-	-	84,199	-	-	-	-	-	-	-	-	-	-	-	-	84,199	-	-	84,199	172,673	**256,872**
Newsprint	m3 RE	-	-	-	-	-	-	-	-	-	450,996	-	-	-	-	-	-	-	-	-	450,996	-	-	450,996	723,380	**1,174,376**
	$000	-	-	-	-	-	-	-	-	-	169,739	-	-	-	-	-	-	-	-	-	169,739	-	-	169,739	258,138	**427,877**
Other Paper & Paperboard	m3 RE	-	2,758	-	118,848	9,971	-	-	35,742	489,183	377,941	-	72,801	-	-	-	3,131	5,210	17,852	1,175,548	2,308,985	35,928	25,047	2,369,960	438,555	**2,808,515**
	$000	-	792	-	34,126	2,863	-	-	10,263	140,464	108,522	-	20,904	-	-	-	899	1,496	5,126	337,547	663,002	10,322	7,197	680,521	140,289	**820,810**
TOTAL	m3 RE	43,000	55,281	1,619	229,799	4,899,027	3,069,305	8,932,219	52,775	489,183	828,937	534,456	279,519	1,182,219	923,626	188,471	40,047	553,821	23,966	1,335,071	23,662,341	202,608	14,422	23,879,371	12,233,390	**36,112,761**
	$000	10,601	13,747	397	60,410	575,244	592,662	524,867	17,224	140,464	278,261	126,529	97,892	595,464	475,286	62,539	16,452	79,996	11,962	389,275	4,069,272	45,781	8,947	4,124,000	2,413,145	**6,537,145**

1997 Supply and Use Industry Breakdown Table

Supply of Forestry Products (cubic metres of roundwood equivalent)

COMMODITIES		OUTPUT BY INDUSTRIES - (ANZIND96 V5.0)													TOTAL	IMPORTS	TOTAL
Forestry Products		Sheep & beef cattle farming	Dairy cattle farming	Forestry	Other agriculture forestry and logging	Log sawmilling and timber dressing	Other wood product mfg	Pulp paper and paperboard mfg	Paper and paperboard containers	Printing and services to printing	Other manufacturing	Non-building construction	Builders supplies wholesaling	All Other Industries	**Production**		**SUPPLY**
Logs and Poles	m3 RE	13,589	2,095	14,959,250	466,053	-	-	-	-	-	-	-	-	514,965	15,955,952	2,887	**15,958,839**
	$000	1,440	222	1,585,179	49,386									54,569	1,690,796	1,541	**1,692,337**
Wood Chips (chipped logs)	m3 RE	-	-	-	-	4,298,517	-	-	-	-	-	-	-	-	4,298,517	870	**4,299,387**
	$000					196,214									196,214	45	**196,259**
Sawn Timber	m3 RE	-	-	24,459	8,035	4,756,817	5,968	259,405	-	-	16,071	29,250	241,542	224,694	5,566,241	88,334	**5,654,575**
	$000			7,080	2,326	1,376,955	1,728	75,090			4,652	8,467	69,919	65,042	1,611,259	35,102	**1,646,361**
Veneer	m3 RE	-	-	-	-	-	475,024	-	-	-	-	-	-	-	475,024	5,824	**480,848**
	$000						89,098								89,098	1,999	**91,097**
Plywood	m3 RE	-	-	-	-	3,474	359,684				3,689				366,847	11,735	**378,582**
	$000					2,932	303,581				3,113				309,627	8,794	**318,421**
Particleboard	m3 RE	-	-	-	-	1,343	348,076				1,564				350,982	3,953	**354,935**
	$000					*838*	217,305				976				219,119	1,484	**220,603**
Fibreboard	m3 RE	-	-	-	-	5,218	777,897		16,884		5,248				805,247	9,137	**814,384**
	$000					3,703	552,025		11,981		3,724				571,433	4,712	**576,145**
Chemical Pulp	m3 RE							2,420,063	-	-	-	-	-	-	2,420,063	79,213	**2,499,276**
	$000							325,205	-	-	-	-	-	-	325,205	10,286	**335,491**
Mechanical Pulp	m3 RE							1,449,912	-	-	-	-	-	-	1,449,912	17	**1,449,929**
	$000							223,290	-	-	-	-	-	-	223,290	31	**223,321**
Newsprint	m3 RE							975,733	-	-	-	-	-	-	975,733	6,387	**982,120**
	$000							323,113	-	-	-	-	-	-	323,113	2,159	**325,272**
Other Paper & Paperboard	m3 RE							1,232,379	669,199	-	33,594	-	-	2,338	1,937,510	922,009	**2,859,519**
	$000							245,375	133,242	-	6,689	-	-	465	385,771	360,372	**746,143**
TOTAL	m3 RE	13,589	2,095	14,983,708	474,088	9,065,370	1,966,649	6,337,492	686,083	-	60,166	29,250	241,542	741,996	34,602,028	1,130,366	**35,732,394**
	$000	1,440	222	1,592,259	51,712	1,580,643	1,163,736	1,192,073	145,223	-	19,155	8,467	69,919	120,076	5,944,925	426,525	**6,371,450**

Use of Forestry Products (cubic metres of roundwood equivalent)

COMMODITIES		INTERMEDIATE CONSUMPTION BY INDUSTRIES - (ANZIND96 V5.0)																					
Forestry Products		Sheep & beef cattle farming	Dairy cattle farming	Forestry	Other agriculture forestry and logging	Log sawmilling and timber dressing	Other wood product mfg	Pulp paper and paperboard mfg	Paper and paperboard containers	Printing and services to printing	Publishing recorded media mfg and publishing	Furniture mfg	Other mfg	Residential building construction	Non-residential construction	Non-building construction	Other construction	Builders supplies wholesaling	Ownership of owner-occupied dwellings	All Other Industries	Total Intermediate Consumption	Total Household Consumption	Changes in Capital & Inventories	**TOTAL DOMESTIC USE**	**EXPORTS**	**TOTAL USE**
Logs and Poles	m3 RE	47,921	51,536	36,917	69,147	4,940,651	1,356,239	3,151,402						83,740				558,266		27,800	10,323,617	166,680	-	10,490,297	5,468,542	**15,958,839**
	$000	11,083	11,919	8,538	15,992	580,481	159,343	129,255						14,487				82,671		6,255	1,020,024	33,278		1,053,302	639,035	**1,692,337**
Wood Chips (chipped logs)	m3 RE	-	-	-	-	-	750,800	2,940,620	-	-	-	-	-	-	-	-	-	-	-	-	3,691,420	-	-	3,691,420	607,967	**4,299,387**
	$000						32,181	126,041													158,222			158,222	38,037	**196,259**
Sawn Timber	m3 RE	-	-	261	102	35,044	1,223,525	137,231	-	-	-	206,003	224,768	873,666	713,426	169,521	39,602	-	-	169,334	3,792,485	-	-	3,792,485	1,862,088	**5,654,573**
	$000			87	34	11,661	407,113	45,662				68,545	74,789	290,702	237,384	56,406	13,177			56,344	1,261,904			1,261,904	384,457	**1,646,361**
Veneer	m3 RE	-	-	-	-	-	131,275					334,978	-	-	-	-	-	-	-	-	466,253	-	-	466,253	14,594	**480,847**
	$000						23,727					60,545									84,272			84,272	6,825	**91,097**
Plywood	m3 RE	268	261	-	158	-	-	-	-	-	-	13,537	4,891	94,525	70,480	-	1,787	-	2,118	663	188,688			188,688	189,894	**378,582**
	$000	292	285	-	172	-	-	-	-	-	-	14,770	5,336	103,136	76,901	-	1,950	-	2,311	724	205,876			205,876	112,545	**318,421**
Particleboard	m3 RE	263	256	-	151	-	-	-	-	-	-	13,297	3,437	92,365	69,207	-	1,770	-	2,087	647	183,480			183,480	171,455	**354,935**
	$000	209	204	-	120	-	-	-	-	-	-	10,600	2,740	73,627	55,168	-	1,411	-	1,663	516	146,258			146,258	74,345	**220,603**
Fibreboard	m3 RE	376	450	-	211	-	-	-	6,168	-	-	14,874	1,676	146,042	102,859	-	2,142	-	3,289	1,093	279,180			279,180	535,203	**814,383**
	$000	416	498	-	233	-	-	-	6,823	-	-	16,452	1,854	161,529	113,766	-	2,370	-	3,637	1,209	308,785			308,785	267,360	**576,145**
Chemical Pulp	m3 RE		-	-	-	-	-	1,303,305	7,685	-	-	-	-	-	-	-	-	-	-	-	1,310,990			1,310,990	1,188,287	**2,499,277**
	$000		-	-	-	-	-	122,480	722	-	-	-	-	-	-	-	-	-	-	-	123,202			123,202	212,289	**335,491**
Mechanical Pulp	m3 RE		-	-	-	-	-	717,225	-	-	-	-	-	-	-	-	-	-	-	-	717,225			717,225	732,704	**1,449,929**
	$000		-	-	-	-	-	76,556	-	-	-	-	-	-	-	-	-	-	-	-	76,556			76,556	146,765	**223,321**
Newsprint	m3 RE		-	-	-	-	-	-	-	-	338,696	-	-	-	-	-	-	-	-	-	338,696			338,696	643,424	**982,120**
	$000		-	-	-	-	-	-	-	-	153,306	-	-	-	-	-	-	-	-	-	153,306			153,306	171,966	**325,272**
Other Paper & Paperboard	m3 RE		2,894	-	123,653	10,888	-	-	36,342	465,273	384,295	-	77,173	-	-	-	3,675	6,319	19,085	1,218,209	2,347,806	36,532		2,384,338	475,180	**2,859,518**
	$000		789	-	33,717	2,969	-	-	9,601	126,868	98,016	-	21,043	-	-	-	1,002	1,723	5,204	332,174	633,106	11,230		644,336	101,807	**746,143**
TOTAL	m3 RE	48,828	55,397	37,178	193,421	4,986,584	3,461,839	8,249,783	50,196	465,273	722,991	582,689	311,945	1,290,338	955,973	169,521	48,976	564,584	26,578	1,417,746	23,639,840	203,212	-	23,843,052	11,889,338	**35,732,390**
	$000	12,001	13,695	8,625	50,268	595,111	622,364	499,994	17,146	126,868	251,322	170,911	105,762	643,481	483,219	56,406	19,909	84,394	12,815	397,221	4,171,511	44,508	-	4,216,019	2,155,431	**6,371,450**

1998 Supply and Use Industry Breakdown Table

Supply of Forestry Products (cubic metres of roundwood equivalent)

COMMODITIES		OUTPUT BY INDUSTRIES - (ANZIND96 V5.0)													TOTAL	IMPORTS	TOTAL
Forestry Products		Sheep & beef cattle farming	Dairy cattle farming	Forestry	Other agriculture forestry and logging	Log sawmilling and timber dressing	Other wood product mfg	Pulp paper and paperboard mfg	Paper and paperboard containers	Printing and services to printing	Other manufacturing	Non-building construction	Builders supplies wholesaling	All Other Industries	**Production**		**SUPPLY**
Logs and Poles	m3 RE	16,016	2,477	15,550,761	516,504	-	-	-	-	-	-	-	-	653,037	16,738,795	2,573	**16,741,368**
	$000	1,513	234	1,469,046	48,793	-	-	-	-	-	-	-	-	61,691	1,581,277	1,660	**1,582,937**
Wood Chips (chipped logs)	m3 RE	-	-	-	-	5,152,694	-	-	-	-	-	-	-	-	5,152,694	27	**5,152,721**
	$000	-	-	-	-	229,774	-	-	-	-	-	-	-	-	229,774	22	**229,796**
Sawn Timber	m3 RE	-	-	25,049	8,793	5,015,506	6,305	270,838	-	-	18,494	34,183	327,378	174,914	5,881,461	66,948	**5,948,409**
	$000	-	-	6,672	2,342	1,335,924	1,680	72,140	-	-	4,926	9,105	87,200	46,590	1,566,579	34,422	**1,601,001**
Veneer	m3 RE	-	-	-	-	-	461,630	-	-	-	-	-	-	-	461,630	2,153	**463,783**
	$000	-	-	-	-	-	83,846	-	-	-	-	-	-	-	83,846	2,575	**86,421**
Plywood	m3 RE	-	-	-	-	3,642	377,068	-	-	-	3,867	-	-	-	384,577	15,726	**400,303**
	$000	-	-	-	-	2,543	263,323	-	-	-	2,701	-	-	-	268,567	11,170	**279,737**
Particleboard	m3 RE	-	-	-	-	1,127	292,154	-	-	-	1,312	-	-	-	294,593	5,173	**299,766**
	$000	-	-	-	-	*582*	150,912	-	-	-	678	-	-	-	152,172	1,659	**153,831**
Fibreboard	m3 RE	-	-	-	-	5,776	887,865	-	19,814	-	6,563	-	-	-	920,018	13,803	**933,821**
	$000	-	-	-	-	3,391	521,314	-	11,634	-	3,853	-	-	-	540,193	5,994	**546,187**
Chemical Pulp	m3 RE	-	-	-	-	-	-	2,505,931	-	-	-	-	-	-	2,505,931	68,478	**2,574,409**
	$000	-	-	-	-	-	-	310,924	-	-	-	-	-	-	310,924	9,952	**320,876**
Mechanical Pulp	m3 RE	-	-	-	-	-	-	1,473,424	-	-	-	-	-	-	1,473,424	-	**1,473,424**
	$000	-	-	-	-	-	-	197,424	-	-	-	-	-	-	197,424	-	**197,424**
Newsprint	m3 RE	-	-	-	-	-	-	999,604	-	-	-	-	-	-	999,604	375	**999,979**
	$000	-	-	-	-	-	-	369,011	-	-	-	-	-	-	369,011	158	**369,169**
Other Paper & Paperboard	m3 RE	-	-	-	-	-	-	1,135,511	738,963	-	26,754	-	-	8,874	1,910,102	1,151,144	**3,061,246**
	$000	-	-	-	-	-	-	195,276	127,081	-	4,601	-	-	1,526	328,484	421,462	**749,946**
TOTAL	m3 RE	16,016	2,477	15,575,810	525,297	10,178,746	2,025,022	6,385,307	758,778	-	56,991	34,183	327,378	836,825	36,722,829	1,326,400	**38,049,229**
	$000	1,513	234	1,475,718	51,135	1,572,215	1,021,075	1,144,775	138,715	-	16,759	9,105	87,200	109,807	5,628,251	489,074	**6,117,325**

Use of Forestry Products (cubic metres of roundwood equivalent)

COMMODITIES		INTERMEDIATE CONSUMPTION BY INDUSTRIES - (ANZIND96 V5.0)																	Total	Total	Changes	TOTAL	EXPORTS	TOTAL
Forestry Products		Sheep & beef cattle farming	Dairy cattle farming	Forestry	Other agriculture forestry and logging	Log sawmilling and timber dressing	Other wood product mfg	Pulp paper and paperboard mfg	Paper and paperboard containers	Printing and services to printing	Publishing recorded media mfg and publishing	Furniture mfg	Other mfg	Residential building construction	Non-residential construction	Non-building construction	Other construction	Builders supplies wholesaling	Ownership of owner-occupied dwellings	All Other Industries	Intermediate Consumption	Household Consumption	in Capital & Inventories	**DOMESTIC USE**		**USE**
Logs and Poles	m3 RE	55,777	49,590	31,671	68,482	5,344,242	1,472,590	3,230,775	-	-	-	-	-	90,580	-	-	-	603,869	-	27,800	10,975,377	166,680	-	11,142,057	5,599,312	**16,741,369**
	$000	13,404	11,917	7,611	16,457	511,688	141,143	115,172	-	-	-	-	-	11,730	-	-	-	78,627	-	6,131	913,880	32,586	-	946,466	636,471	**1,582,937**
Wood Chips (chipped logs)	m3 RE	-	-	-	-	-	1,129,794	3,326,345	-	-	-	-	-	-	-	-	-	-	-	-	4,456,139	-	-	4,456,139	696,582	**5,152,721**
	$000	-	-	-	-	-	47,467	139,754	-	-	-	-	-	-	-	-	-	-	-	-	187,221	-	-	187,221	42,575	**229,796**
Sawn Timber	m3 RE	-	-	254	106	33,448	1,167,787	132,147	-	-	-	210,672	216,493	921,745	669,060	205,937	39,774	-	-	174,702	3,772,127	-	-	3,772,127	2,176,282	**5,948,409**
	$000			77	32	10,130	353,675	40,022	-	-	-	63,804	65,567	279,159	202,631	62,370	12,046			52,910	1,142,423	-	-	1,142,423	458,578	**1,601,001**
Veneer	m3 RE	-	-	-	-	-	122,614	-	-	-	-	330,140	-	-	-	-	-	-	-	-	452,754	-	-	452,754	11,028	**463,782**
	$000	-	-	-	-	-	21,962	-	-	-	-	59,133	-	-	-	-	-	-	-	-	81,095	-	-	81,095	5,326	**86,421**
Plywood	m3 RE	299	263	-	159	-	-	-	-	-	-	13,035	5,148	92,214	74,594	-	1,578	-	2,133	639	190,063	-	-	190,063	210,241	**400,304**
	$000	270	238	-	144	-	-	-	-	-	-	11,787	4,655	83,379	67,448	-	1,427	-	1,929	578	171,854	-	-	171,854	107,883	**279,737**
Particleboard	m3 RE	250	227	-	134	-	-	-	-	-	-	11,183	3,046	76,848	66,927	-	1,568	-	1,832	573	162,589	-	-	162,589	137,177	**299,766**
	$000	143	130	-	76	-	-	-	-	-	-	6,386	1,739	43,885	38,220	-	895	-	1,046	327	92,849	-	-	92,849	60,982	**153,831**
Fibreboard	m3 RE	612	545	-	317	-	-	-	5,208	-	-	17,495	2,064	173,633	136,609	-	2,490	-	3,532	1,346	343,851	-	-	343,851	589,970	**933,821**
	$000	696	620	-	360	-	-	-	5,924	-	-	19,900	2,348	197,505	155,390	-	2,832	-	4,018	1,531	391,125	-	-	391,125	155,062	**546,187**
Chemical Pulp	m3 RE	-	-	-	-	-	-	1,404,293	8,303	-	-	-	-	-	-	-	-	-	-	-	1,412,596	-	-	1,412,596	1,161,812	**2,574,408**
	$000	-	-	-	-	-	-	105,544	624	-	-	-	-	-	-	-	-	-	-	-	106,168	-	-	106,168	214,708	**320,876**
Mechanical Pulp	m3 RE	-	-	-	-	-	-	817,234	-	-	-	-	-	-	-	-	-	-	-	-	817,234	-	-	817,234	656,190	**1,473,424**
	$000	-	-	-	-	-	-	68,625	-	-	-	-	-	-	-	-	-	-	-	-	68,625	-	-	68,625	128,799	**197,424**
Newsprint	m3 RE	-	-	-	-	-	-	-	-	-	328,777	-	-	-	-	-	-	-	-	-	328,777	-	-	328,777	671,202	**999,979**
	$000	-	-	-	-	-	-	-	-	-	150,625	-	-	-	-	-	-	-	-	-	150,625	-	-	150,625	218,544	**369,169**
Other Paper & Paperboard	m3 RE	-	3,135	-	140,300	10,354	-	-	36,918	495,414	389,940	-	81,972	-	-	-	3,687	6,480	19,488	1,196,059	2,383,746	37,111	-	2,420,857	640,390	**3,061,247**
	$000	-	789	-	35,313	2,606	-	-	8,296	124,694	96,301	-	20,632	-	-	-	928	1,631	4,905	301,044	597,139	8,774	-	605,913	144,033	**749,946**
TOTAL	m3 RE	56,938	53,760	31,926	209,496	5,388,044	3,892,785	8,910,794	50,430	495,414	718,717	582,526	308,724	1,355,021	947,191	205,937	49,097	610,349	26,985	1,401,119	25,295,252	203,791	-	25,499,043	12,550,186	**38,049,229**
	$000	14,513	13,694	7,688	52,382	524,424	564,247	469,117	14,844	124,694	246,926	161,010	94,942	615,659	463,689	62,370	18,129	80,258	11,898	362,521	3,903,004	41,360	-	3,944,364	2,172,961	**6,117,325**

1999 Supply and Use Industry Breakdown Table

Supply of Forestry Products (cubic metres of roundwood equivalent)

COMMODITIES		OUTPUT BY INDUSTRIES - (ANZIND96 V5.0)													TOTAL	IMPORTS	TOTAL
Forestry Products		Sheep & beef cattle farming	Dairy cattle farming	Forestry	Other agriculture forestry and logging	Log sawmilling and timber dressing	Other wood product mfg	Pulp paper and paperboard mfg	Paper and paperboard containers	Printing and services to printing	Other manufacturing	Non-building construction	Builders supplies wholesaling	All Other Industries	**Production**		**SUPPLY**
Logs and Poles	m3 RE	15,117	2,334	15,691,274	503,561	-	-	-	-	-	-	-	-	417,505	16,629,791	4,187	**16,633,978**
	$000	1,360	210	1,411,671	45,303	-	-	-	-	-	-	-	-	37,561	1,496,105	2,269	**1,498,374**
Wood Chips (chipped logs)	m3 RE	-	-	-	-	4,603,397	-	-	-	-	-	-	-	-	4,603,397	88	**4,603,485**
	$000	-	-	-	-	210,789	-	-	-	-	-	-	-	-	210,789	56	**210,845**
Sawn Timber	m3 RE	-	-	25,824	8,412	5,031,667	6,312	289,068	-	-	19,657	46,352	363,686	147,521	5,938,499	68,743	**6,007,242**
	$000			6,290	2,049	1,225,576	1,537	70,409			4,788	11,290	88,584	35,932	1,446,455	39,159	**1,485,614**
Veneer	m3 RE	-	-	-	-	-	457,320	-	-	-	-	-	-	-	457,320	989	**458,309**
	$000	-	-	-	-	-	86,065	-	-	-	-	-	-	-	86,065	2,334	**88,399**
Plywood	m3 RE	-	-	-	-	4,137	428,320	-	-	-	4,393	-	-	-	436,850	13,781	**450,631**
	$000	-	-	-	-	2,823	292,308	-	-	-	2,998	-	-	-	298,129	11,230	**309,359**
Particleboard	m3 RE	-	-	-	-	973	252,248	-	-	-	1,133	-	-	-	254,354	4,055	**258,409**
	$000	-	-	-	-	*491*	127,333	-	-	-	572	-	-	-	128,397	1,215	**129,612**
Fibreboard	m3 RE	-	-	-	-	5,388	871,202	-	18,439	-	5,981	-	-	-	901,010	18,038	**919,048**
	$000	-	-	-	-	3,091	499,890	-	10,580	-	3,432	-	-	-	516,993	8,176	**525,169**
Chemical Pulp	m3 RE	-	-	-	-	-	-	2,070,553	-	-	-	-	-	-	2,070,553	93,757	**2,164,310**
	$000	-	-	-	-	-	-	330,851	-	-	-	-	-	-	330,851	16,138	**346,989**
Mechanical Pulp	m3 RE	-	-	-	-	-	-	1,511,414	-	-	-	-	-	-	1,511,414	190	**1,511,604**
	$000	-	-	-	-	-	-	195,856	-	-	-	-	-	-	195,856	34	**195,890**
Newsprint	m3 RE	-	-	-	-	-	-	1,000,601	-	-	-	-	-	-	1,000,601	182	**1,000,783**
	$000	-	-	-	-	-	-	396,368	-	-	-	-	-	-	396,368	57	**396,425**
Other Paper & Paperboard	m3 RE	-	-	-	-	-	-	888,775	604,647	-	25,079	-	-	2,724	1,521,225	1,297,096	**2,818,321**
	$000	-	-	-	-	-	-	188,889	128,504	-	5,330	-	-	579	323,302	467,972	**791,274**
TOTAL	m3 RE	15,117	2,334	15,717,098	511,973	9,645,562	2,015,402	5,760,411	623,085	-	56,244	46,352	363,686	567,750	35,325,014	1,501,106	**36,826,120**
	$000	1,360	210	1,417,961	47,352	1,442,771	1,007,134	1,182,373	139,084	-	17,120	11,290	88,584	74,072	5,429,310	548,640	**5,977,950**

Use of Forestry Products (cubic metres of roundwood equivalent)

COMMODITIES		INTERMEDIATE CONSUMPTION BY INDUSTRIES - (ANZIND96 V5.0)																		Total	Total	Changes	TOTAL	EXPORTS	TOTAL
Forestry Products		Sheep & beef cattle farming	Dairy cattle farming	Forestry	Other agriculture forestry and logging	Log sawmilling and timber dressing	Other wood product mfg	Pulp paper and paperboard mfg	Paper and paperboard containers	Printing and services to printing	Publishing recorded media mfg and publishing	Furniture mfg	Other mfg	Residential building construction	Non-residential construction	Non-building construction	Other construction	Builders supplies wholesaling	Ownership of owner-occupied dwellings	All Other Industries	Intermediate Consumption	Household Consumption	in Capital & Inventories	DOMESTIC USE		USE
Logs and Poles	m3 RE	50,750	49,480	32,944	72,346	5,477,288	1,610,520	3,274,811						128,119				935,409		27,800	11,659,467	166,680	-	11,826,147	4,807,831	**16,633,978**
	$000	12,187	11,882	7,911	17,373	586,385	172,395	126,496						11,369				83,006		6,237	1,035,241	34,116		1,069,357	429,017	**1,498,374**
Wood Chips (chipped logs)	m3 RE	-	-	-	-	-	970,868	2,875,084	-	-	-	-	-	-	-	-	-	-	-	-	3,845,952	-	-	3,845,952	757,533	**4,603,485**
	$000	-	-	-	-	-	41,224	122,078	-	-	-	-	-	-	-	-	-	-	-	-	163,302	-	-	163,302	47,543	**210,845**
Sawn Timber	m3 RE	-	-	320	138	24,797	1,082,093	146,881	-	-	-	269,564	276,061	858,766	553,605	239,941	51,390	-	-	221,590	3,725,145	-	-	3,725,145	2,282,099	**6,007,244**
	$000	-	-	81	35	6,278	275,090	37,161	-	-	-	68,248	69,893	217,268	140,062	60,748	13,011	-	-	56,102	943,977	-	-	943,977	541,637	**1,485,614**
Veneer	m3 RE	-	-	-	-	-	120,324	-	-	-	-	331,507	-	-	-	-	-	-	-	-	451,831	-	-	451,831	6,478	**458,309**
	$000	-	-	-	-	-	22,370	-	-	-	-	61,632	-	-	-	-	-	-	-	-	84,002	-	-	84,002	4,397	**88,399**
Plywood	m3 RE	292	301	-	232	-	-	-	-	-	-	17,145	3,803	93,783	95,360	-	1,806	-	2,841	1,931	217,494	-	-	217,494	233,138	**450,632**
	$000	265	273	-	210	-	-	-	-	-	-	15,539	3,447	84,998	86,427	-	1,637	-	2,575	1,750	197,121	-	-	197,121	112,238	**309,359**
Particleboard	m3 RE	203	212	-	124	-	-	-	-	-	-	11,440	1,835	60,339	72,304	-	1,460	-	1,705	1,734	151,356	-	-	151,356	107,052	**258,408**
	$000	120	126	-	74	-	-	-	-	-	-	6,789	1,089	35,807	42,907	-	866	-	1,012	1,029	89,820	-	-	89,820	39,792	**129,612**
Fibreboard	m3 RE	469	440	-	294	-	-	-	4,575	-	-	15,382	696	129,469	122,353	-	2,542	-	3,343	2,940	282,503	-	-	282,503	636,545	**919,048**
	$000	623	585	-	391	-	-	-	6,082	-	-	20,449	925	172,126	162,664	-	3,380	-	4,445	3,908	375,579	-	-	375,579	149,590	**525,169**
Chemical Pulp	m3 RE	-	-	-	-	-	-	1,030,768	6,078	-	-	-	-	-	-	-	-	-	-	-	1,036,845	-	-	1,036,845	1,127,464	**2,164,309**
	$000	-	-	-	-	-	-	99,428	586	-	-	-	-	-	-	-	-	-	-	-	100,014	-	-	100,014	246,975	**346,989**
Mechanical Pulp	m3 RE	-	-	-	-	-	-	871,782	-	-	-	-	-	-	-	-	-	-	-	-	871,782	-	-	871,782	639,822	**1,511,604**
	$000	-	-	-	-	-	-	66,323	-	-	-	-	-	-	-	-	-	-	-	-	66,323	-	-	66,323	129,567	**195,890**
Newsprint	m3 RE	-	-	-	-	-	-	-	-	-	344,637	-	-	-	-	-	-	-	-	-	344,637	-	-	344,637	656,146	**1,000,783**
	$000	-	-	-	-	-	-	-	-	-	144,819	-	-	-	-	-	-	-	-	-	144,819	-	-	144,819	251,606	**396,425**
Other Paper & Paperboard	m3 RE	-	2,707	-	152,297	7,880	-	-	32,407	412,759	342,640	-	65,480	-	-	-	3,110	5,425	16,532	1,052,229	2,093,466	32,576	-	2,126,042	692,279	**2,818,321**
	$000	-	786	-	44,219	2,288	-	-	7,794	117,084	92,589	-	19,012	-	-	-	903	1,575	4,800	305,511	596,561	8,379	-	604,940	186,334	**791,274**
TOTAL	m3 RE	51,714	53,139	33,264	225,432	5,509,965	3,783,805	8,199,326	43,060	412,759	687,277	645,038	347,876	1,270,476	843,621	239,941	60,309	940,834	24,421	1,308,224	24,680,479	199,256	-	24,879,735	11,946,387	**36,826,122**
	$000	13,195	13,651	7,992	62,302	594,951	511,079	451,486	14,462	117,084	237,408	172,657	94,367	521,568	432,061	60,748	19,797	84,581	12,831	374,538	3,796,759	42,495	-	3,839,254	2,138,696	**5,977,950**