# Part III

## B.C.'S FORESTS AND FOREST INDUSTRY

### B.C. GROWING STOCK

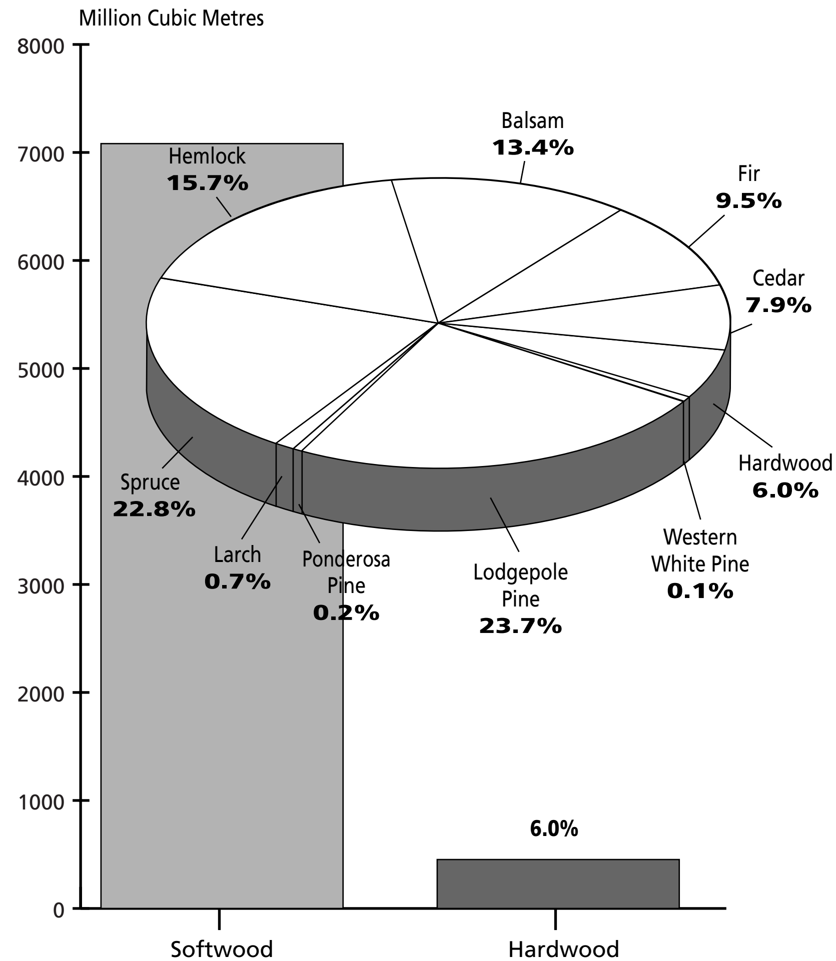
B.C.'s total growing stock, which includes both immature and mature trees by all ownership, totalled 7,534.9 million cubic metres in 1996. The predominant species are softwood, or coniferous, accounting for 94 per cent of the total, or 7,081.9 million cubic metres. Hardwood, or deciduous trees, make up the balance of 6 per cent or 453.0 million cubic metres.

In 1996 the total harvest in B.C. was 75.2 million cubic metres.

Source: *Ministry of Forests*

**B.C. GROWING STOCK: 1996**

**Total Volume: 7,534.9 Million Cubic Metres**
**Softwood: 7,081.9 Million Cubic Metres**
**Hardwood: 453.0 Million Cubic Metres**



## B.C.'S ALLOWABLE ANNUAL CUT AND VOLUME HARVESTED

The allowable annual cut or AAC is the volume of timber that the Chief Forester of British Columbia determines can be harvested from the lands regulated by the province.

Every five years the Chief Forester reassesses the allowable annual cut (AAC) for the 37 timber supply areas (TSA's) and 34 tree farm license areas (TFL's) within B.C.'s commercial forests. The most recent set of timber supply review AAC determinations were completed in December 1996 and resulted in the total provincial AAC being reduced by 325,000 cubic metres. This is a 0.5 per cent reduction since the timber supply review began in 1992. The AAC before and after the timber supply review, however, are not entirely comparable. The conventional timber supply of coniferous wood was reduced by 5.2 per cent while some wood previously harvested under special licences outside the AAC, such as pulpwood forests and over mature cedar and hemlock, are now included in the AAC. After allowing for the changes described above, the real reduction in terms of the pre-timber supply review AAC is somewhat greater and is in the range of one or two per cent.

The Chief Forester's determinations underscore the fact that B.C. is in a period of transition. While original forests will continue to be a significant source of timber for another 25-50 years, B.C. is moving towards an era of increased management and utilization of second growth forests.

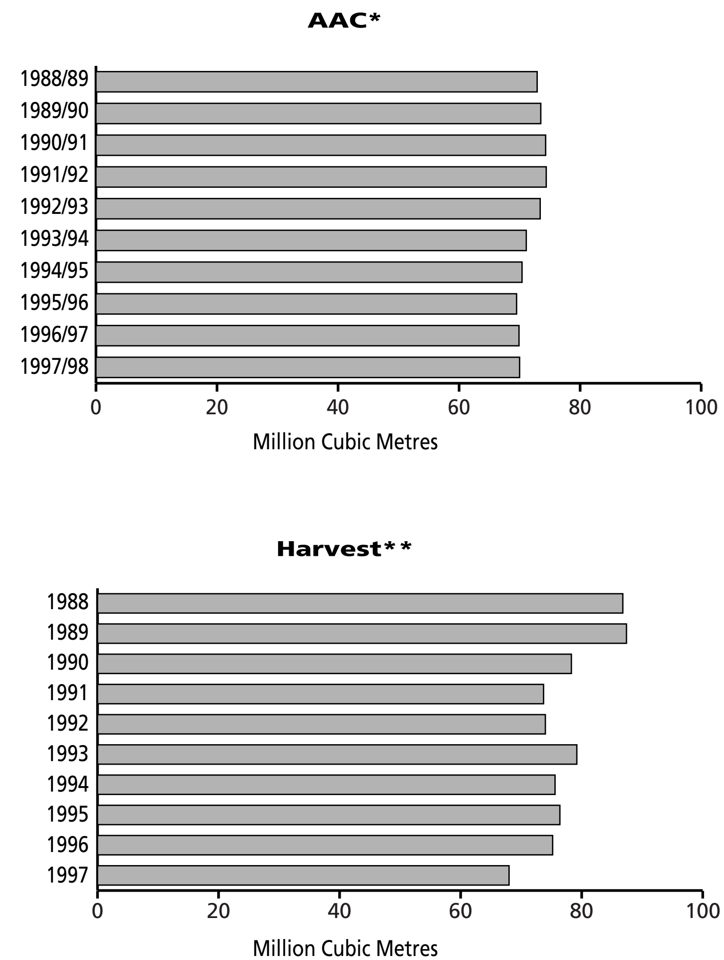
In the final analysis, the future AAC will be what British Columbians decide to make it. Achieving and maintaining the level of AAC necessary to assure ongoing benefits from the forest resource ultimately requires the involvement of everyone who receives those benefits.

Timber can also be harvested from lands that are not included in the AAC determination. As a result, the actual harvest can exceed the AAC without necessarily jeopardizing the principles on which the AAC is determined.

As well, on regulated lands, the law permits harvesting to fluctuate from the AAC by 50 per cent each year as long as the harvest is within 10 per cent of the AAC over a five-year period. This allows for variations in the harvest due to market conditions, adverse weather and other factors than can influence the level of harvest.

*Source: B.C. Ministry of Forests*

### B.C.'S ALLOWABLE ANNUAL CUT & VOLUME HARVESTED: 1988 - 1997




* *Applies to Timber Supply Areas and Tree Farm Licences on a fiscal year basis.*

** *Includes logs harvested from both public and private lands and represents a larger land base than that from which the AAC is derived.*

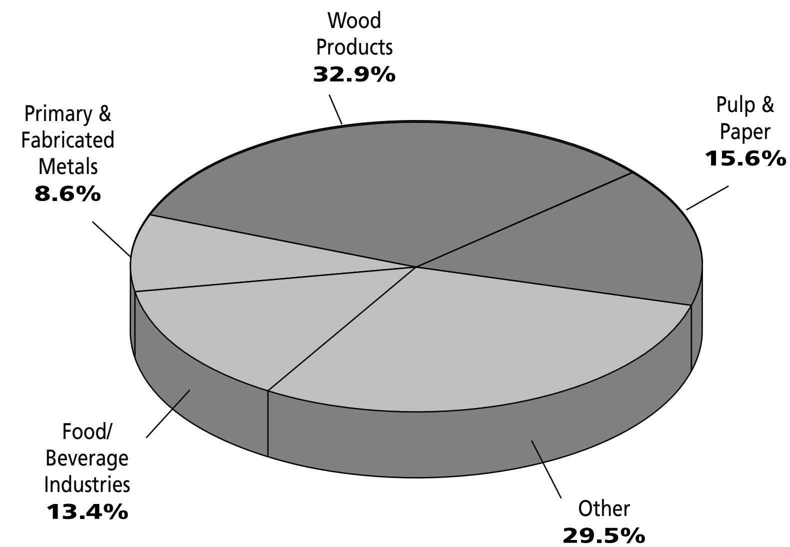
## B.C. FOREST INDUSTRY AND THE PROVINCIAL ECONOMY

The B.C. forest industry is a key contributor to the provincial economy. In 1997 it made up over 48 per cent, or $16.8 billion, of total manufactured shipments. Wood products accounted for 32.9 per cent, up slightly from the previous year, and pulp and paper products accounted for 15.6 per cent.

*Source: Statistics Canada*

**B.C. FOREST INDUSTRY AND THE PROVINCIAL ECONOMY: 1997**

**Total B.C. Manufactured Shipments: $34.6 Billion**



## GROSS DOMESTIC PRODUCT OF GOODS-PRODUCING INDUSTRIES IN B.C.

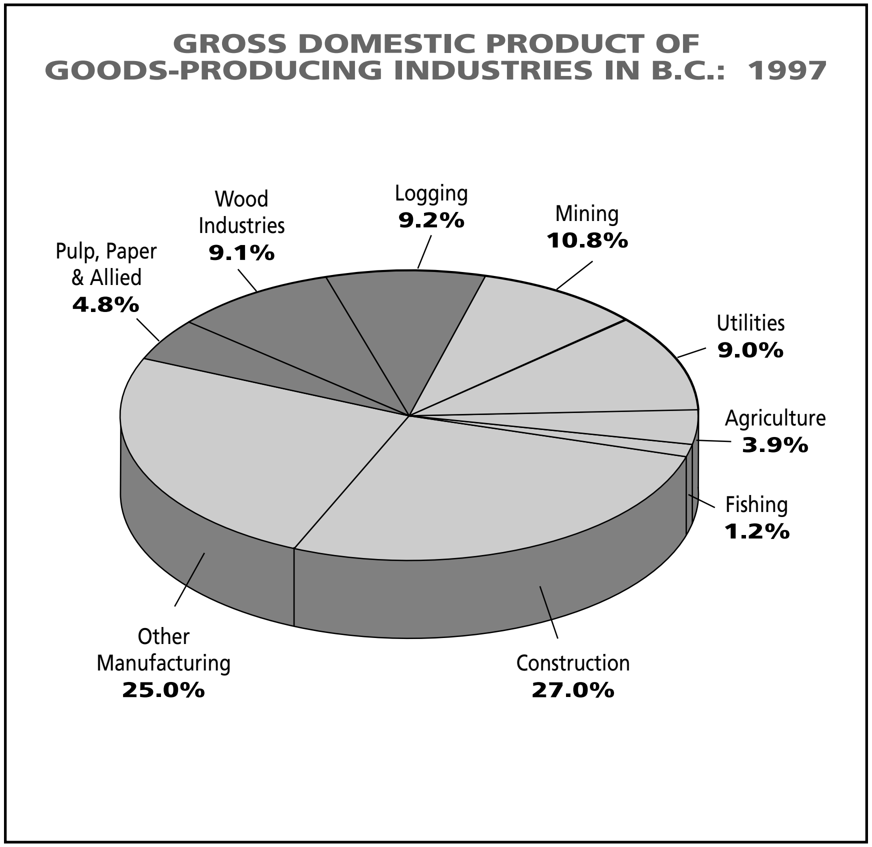
Economic performance is commonly measured in terms of Gross Domestic Products or GDP. A portion of the GDP is made up of the goods-producing sector.

Among the goods-producing industries, the forest industry contributed 23.1 per cent to B.C.'s GDP. The forest industry is comprised of the wood industries, pulp, paper and allied industries and the logging industry. Other resource based, goods producing industries, such as mining, accounted for 10.8 per cent, utilities 9.0 per cent, and agriculture and fishing which made up 5.1 per cent.

Construction contributes 27.0 per cent, and other manufacturing accounted for 25.0 per cent.

From this information one can conclude that the B.C. economy still depends heavily on its natural resources and their development. The importance of natural resources to the B.C. economy has also impacted the composition of the province's service sector. The transportation industry, for example, depends heavily on moving manufactured products to markets in Canada, the United States and around the world.

*Source: Statistics Canada*



## BC. FOREST PRODUCTS EXPORTS

The total value of B.C.'s forest products exports was $14.6 billion in 1997, a drop of 2.1 per cent from $14.9 billion in 1996.

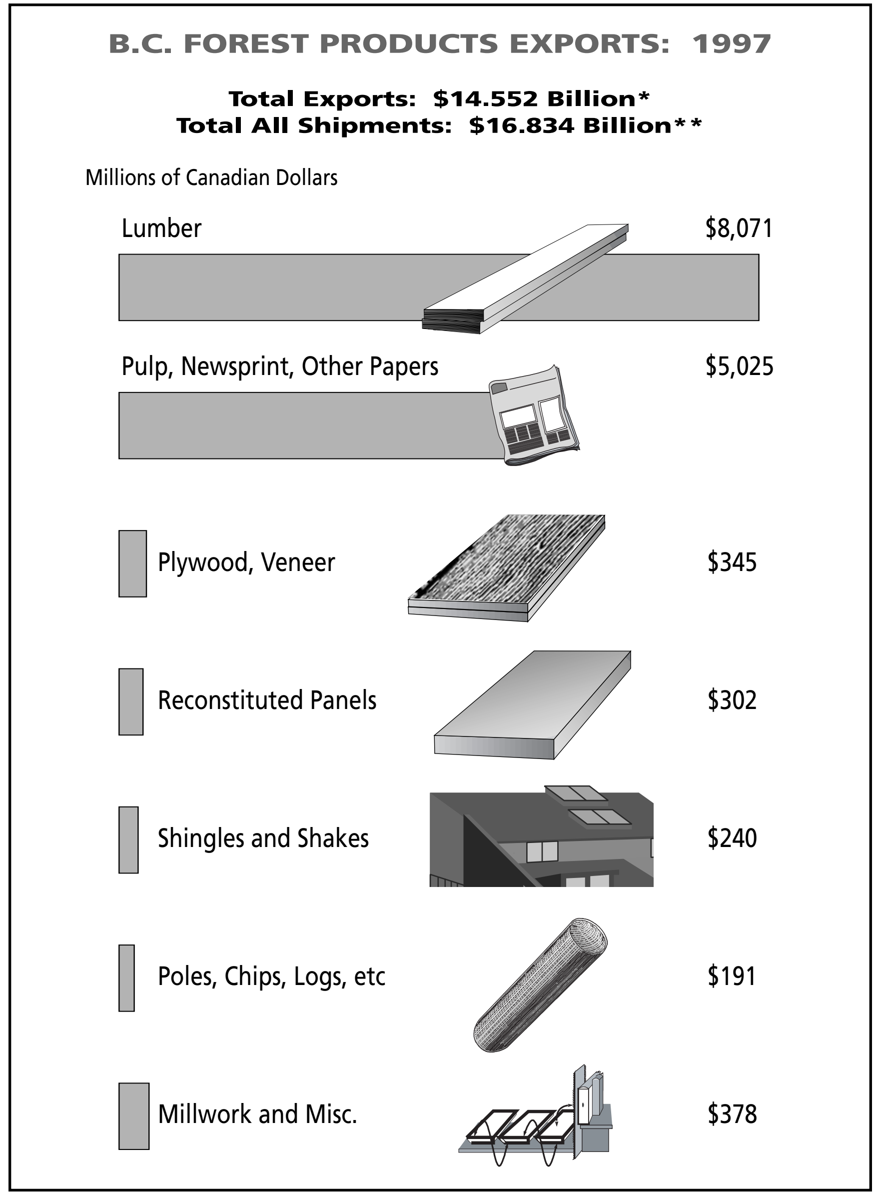
In 1997 B.C.'s lumber exports totalled $8.1 billion, up 1.7 per cent from 1996. Lumber accounted for 55 per cent of total forest products exported. B.C.'s major market, the U.S. accounted for 66 per cent of total softwood exports, while exports of softwood lumber to Japan accounted for 26.0 per cent.

In 1997 pulp, newsprint and other paper products exports totalled $5.0 billion, down 12.0 per cent from 1996. Pulp and paper products accounted for 34.5 per cent of all forest products exports in 1997, down from 38.4 per cent in 1996. The decline in export revenues was attributed to weak pulp prices throughout the year.

Plywood exports were $253.7 million in 1997, and veneer exports totalled $90.9 million.

The balance of exports were made up of chips, logs, poles, shingles/shakes, millwork, reconstituted panels accounting for $1.1 billion.

*Source: *Statistics Canada, International Trade Division **Statistics Canada. Catalogue 31-001*



## B.C. LOG HARVEST

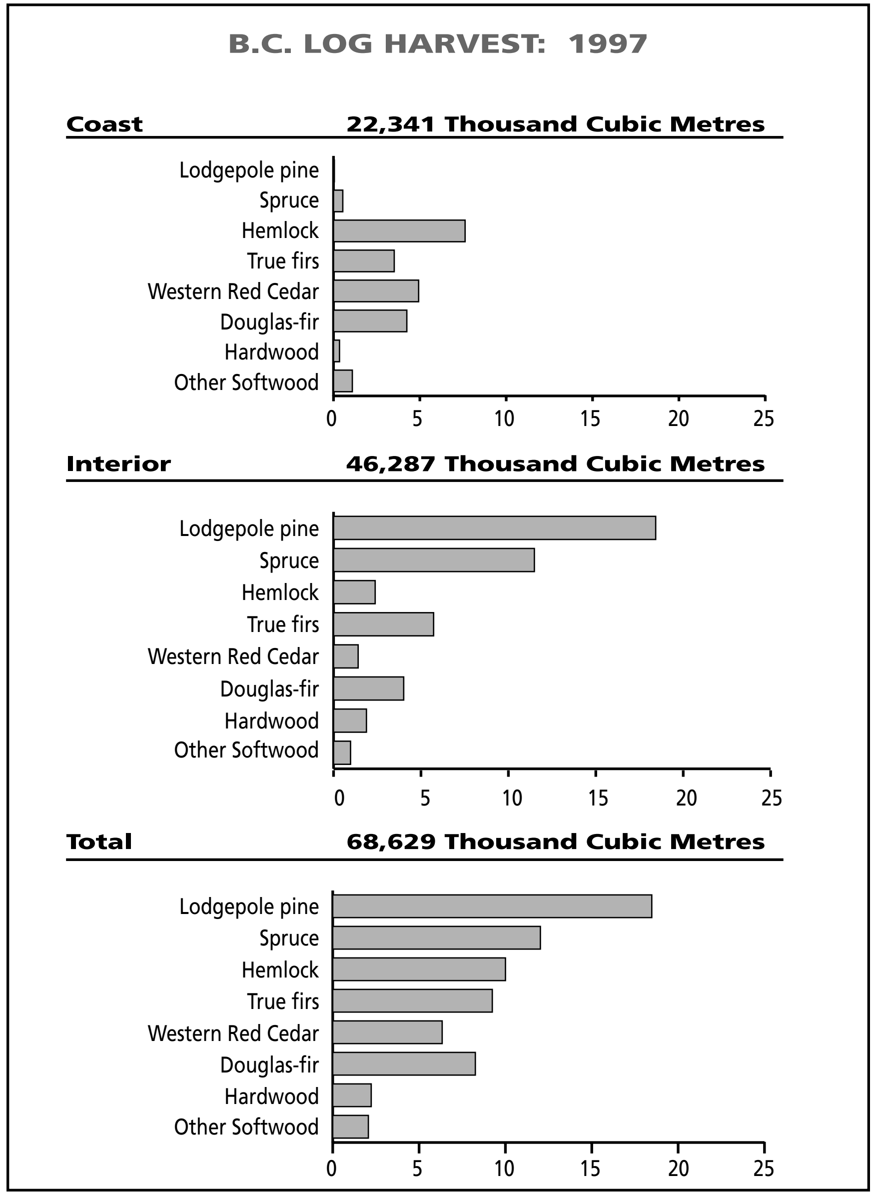
In 1997 the B.C. log harvest was 68,629 thousand cubic metres, a decline of 8.8 per cent from the 75,213 thousand cubic metres harvested in 1996. The logs were harvested from both private and public lands.

Close to one-third of the 1997 B.C. log harvest came from Coastal forests. Hemlock comprised the largest volume, followed by Western Red Cedar, Douglas-fir, true firs, and spruce.

Roughly two-thirds of the logs harvested were from the Interior. Lodgepole pine comprised the largest volume, followed by spruce, true firs, Douglas-fir and hemlock.

B.C. hardwood species make up 3.2 per cent of the log harvest.

*Source: B.C. Ministry of Forests*



# B.C. LOG EXPORTS

Provincial forest policy continues to encourage the domestic use of logs for processing in B.C. mills.

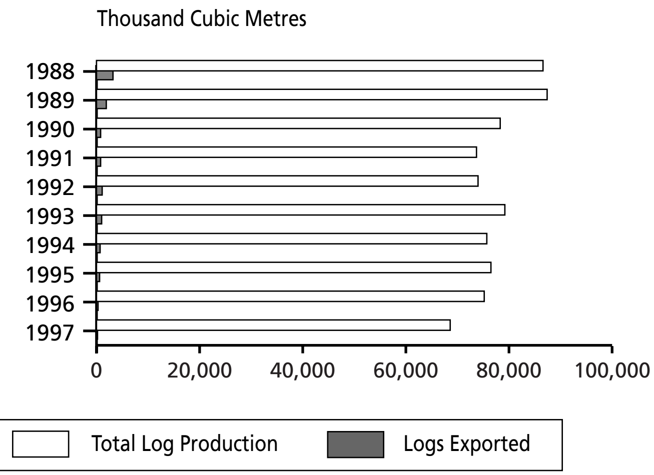
Generally, the government permits only those logs deemed to be surplus to B.C. milling requirements to be exported. Exemptions may be given when timber cannot be processed economically within the province.

In 1988 the province exported 3.2 million cubic metres of logs, or 3.7 per cent of total log harvest. By 1997 log exports had declined to 189.5 thousand cubic metres, or 0.2 per cent of the province's total log harvest.

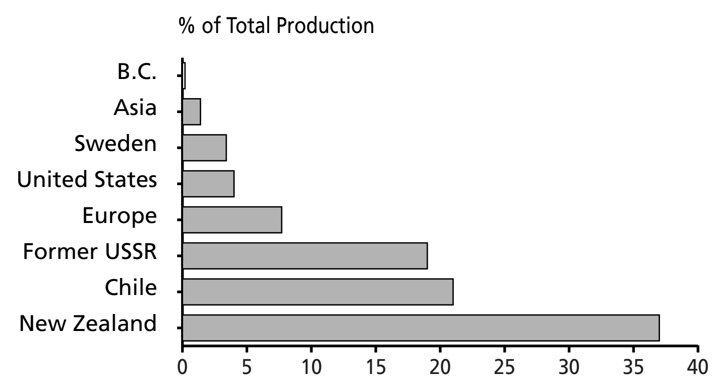
**Sources: COFI and B.C. Ministry of Forests **Sources: B.C. Ministry of Forests, U.N. Food & Agriculture Organization*

## B.C. LOG EXPORTS: 1988 - 1997

**B.C. LOG EXPORTS COMPARED TO TOTAL LOG PRODUCTION - 1988 - 1997 ***




**B.C. LOG EXPORTS COMPARED TO LOG EXPORTS BY OTHER JURISDICTIONS - 1996 ****



# DESTINATION OF B.C. WOOD PRODUCTS – BY VALUE (Excluding pulp & paper)

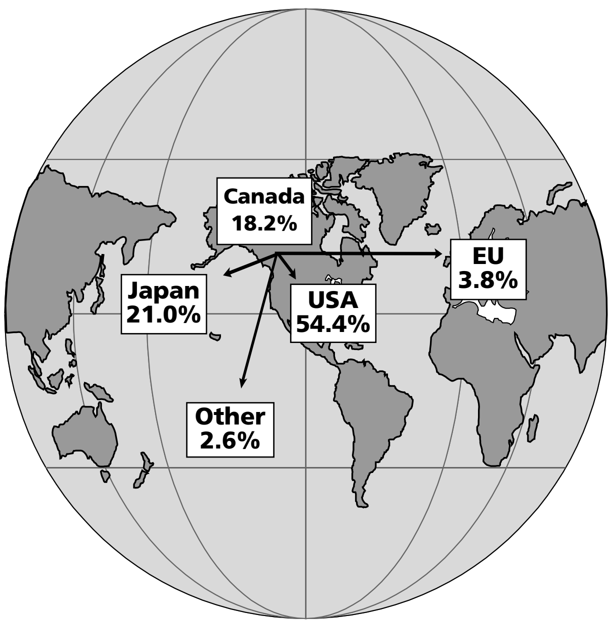
The value of B.C. domestic and overseas wood products shipments (excluding pulp and paper products) totalled $11.4 billion in 1997, $990 million more than in 1996.

In 1997 exports of B.C.'s wood products (excluding pulp & paper) accounted for 18.8 per cent of total product shipments. The balance of 18.2 per cent was consumed within Canada. As the largest consumer of B.C. wood products, the United States received 54.4 per cent of shipments. The second largest consumer, Japan, received 21.0 per cent, while the European Union (EU) accounted for 3.8% and the remaining countries took the balance of 2.6 per cent.

*Source: Statistics Canada, Catalogue 31-001*

## DESTINATION OF B.C. WOOD PRODUCTS – BY VALUE (Excluding pulp & paper): 1997

**Total Exports: $9.337 Billion**
**Total Value All B.C. Wood Products* Shipments: $11.442 Billion**




* *Includes lumber, plywood, shingle/shakes and millwork*

# DESTINATION OF B.C. PULP, PAPER AND PAPERBOARD PRODUCTS – BY VOLUME

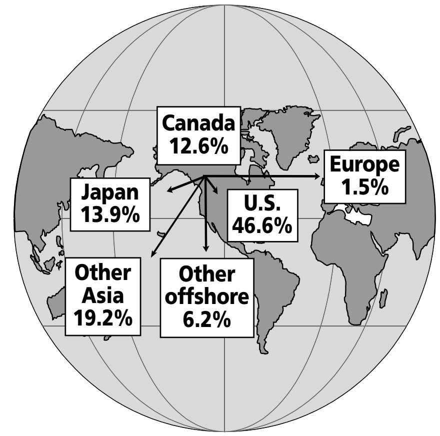
B.C. newsprint shipments totalled 1,185 thousand metric tonnes in 1997. The largest customer, the United States, accounted for 46.6 per cent of total exports. Asia (excluding Japan) accounted for 19.2 per cent, while Japan received 13.9 per cent. Europe 1.5 per cent and all other offshore exports amounted to 6.2 per cent. Domestic shipments were 12.6 per cent in 1997.

B.C. pulp, paper and paperboard shipments (excluding newsprint) totalled 5,987 thousand metric tonnes in 1997. The largest customer was Europe, representing 26.7 per cent, followed by other Asian countries (excluding Japan) with 24.1 per cent, the United States with 22.2 per cent, Japan with 14.6 per cent, and all other offshore exports with 4.5 per cent. Domestic shipments accounted for 7.9 per cent in 1997.

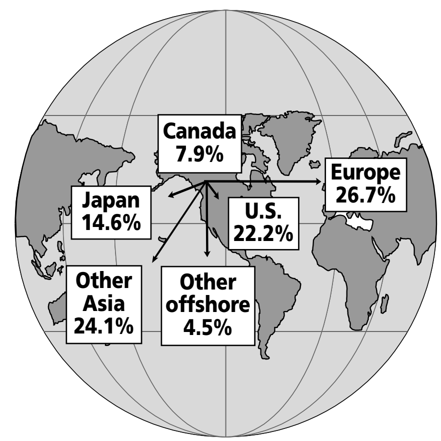
*Source: Canadian Pulp and Paper Association*

## DESTINATION OF B.C. PULP, PAPER & PAPERBOARD PRODUCTS – BY VOLUME: 1997

**Destination of newsprint by volume**




**Destination of pulp, paper and paperboard by volume (excluding newsprint)**



Source: Price Waterhouse

## FOREST EMPLOYMENT IN B.C.: 1990 - 1997

The forest industry in B.C. accounted for 97,250 direct jobs and a further 195,000 indirect jobs in 1997. The forest industry is a major source of livelihood for 292,500 British Columbians, down 1.5 per cent from 1996. Forest industry employment represented 17 per cent of the total provincial workforce in 1997.

Employment in the logging sector in 1997 accounted for 29,650 jobs, or 30.5 per cent of the total. This sector over the past five-years has increased in employment by 12.7 per cent, reflecting the impact of the Forest Practices Code.

Employment in 1997 in the lumber/sawmilling sector accounted for 23,000, or 23.7 per cent of total. The pulp and newsprint sector employed a total of 10,700, representing 11.5 per cent of total and down from 11,200 in 1996. In 1997 the plywood sector employed 3,300, representing 3.4 per cent of total and unchanged from the previous year. Value-added or secondary manufacturing in 1997 employed 13,000, unchanged from 1996 and represents 13.4 per cent of total. Overall, the manufacturing sector of the forest industry represents 52.0 per cent of total.

The provincial government employed 5,000 people in 1997, including Ministry of Forests, Forest Renewal B.C., and the Forest Practices Board.

Silviculture in 1997 employed 4,600, accounting for 4.7 per cent of total and over the same five-year period rose 15 per cent. This is in part, a result of the Forest Practices Code.

All other forest industry sectors accounted for 8,000, or 8.2 per cent of total employment.

The forest industry generated, directly and indirectly, 4.3 jobs for every 1,000 cubic metres harvested in 1997.

### FOREST EMPLOYMENT IN B.C.: 1990 - 1997

**Direct Employment**

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 |
|---|---|---|---|---|---|---|---|---|
| Logging | 23,500 | 23,200 | 25,050 | 26,300 | 28,200 | 29,400 | 30,500 | 29,650 |
| Lumber | 26,900 | 25,400 | 24,450 | 24,100 | 24,300 | 24,100 | 23,700 | 23,000 |
| Market Pulp | 8,200 | 8,100 | 7,950 | 7,900 | 7,700 | 7,700 | 7,500 | 7,400 |
| Newsprint | 4,900 | 4,900 | 4,600 | 4,200 | 4,000 | 3,900 | 3,700 | 3,300 |
| Value Added Sector | 11,500 | 11,500 | 11,500 | 11,700 | 12,500 | 12,500 | 13,000 | 13,000 |
| Plywood | 4,500 | 3,900 | 3,200 | 3,250 | 3,200 | 3,200 | 3,300 | 3,300 |
| Ministry of Forests | 3,500 | 4,000 | 4,500 | 4,500 | 4,800 | 4,900 | 5,000 | 5,000 |
| Silvicultural | 2,000 | 2,000 | 4,000 | 4,000 | 4,600 | 4,600 | 4,600 | 4,600 |
| Other Operations | 8,800 | 7,700 | 6,950 | 6,250 | 6,600 | 7,200 | 7,800 | 8,000 |
| **Total** | **93,800** | **90,700** | **92,200** | **92,200** | **95,900** | **97,500** | **99,100** | **97,250** |

**Employment Per 1,000 Cubic Metres Logs Harvested**

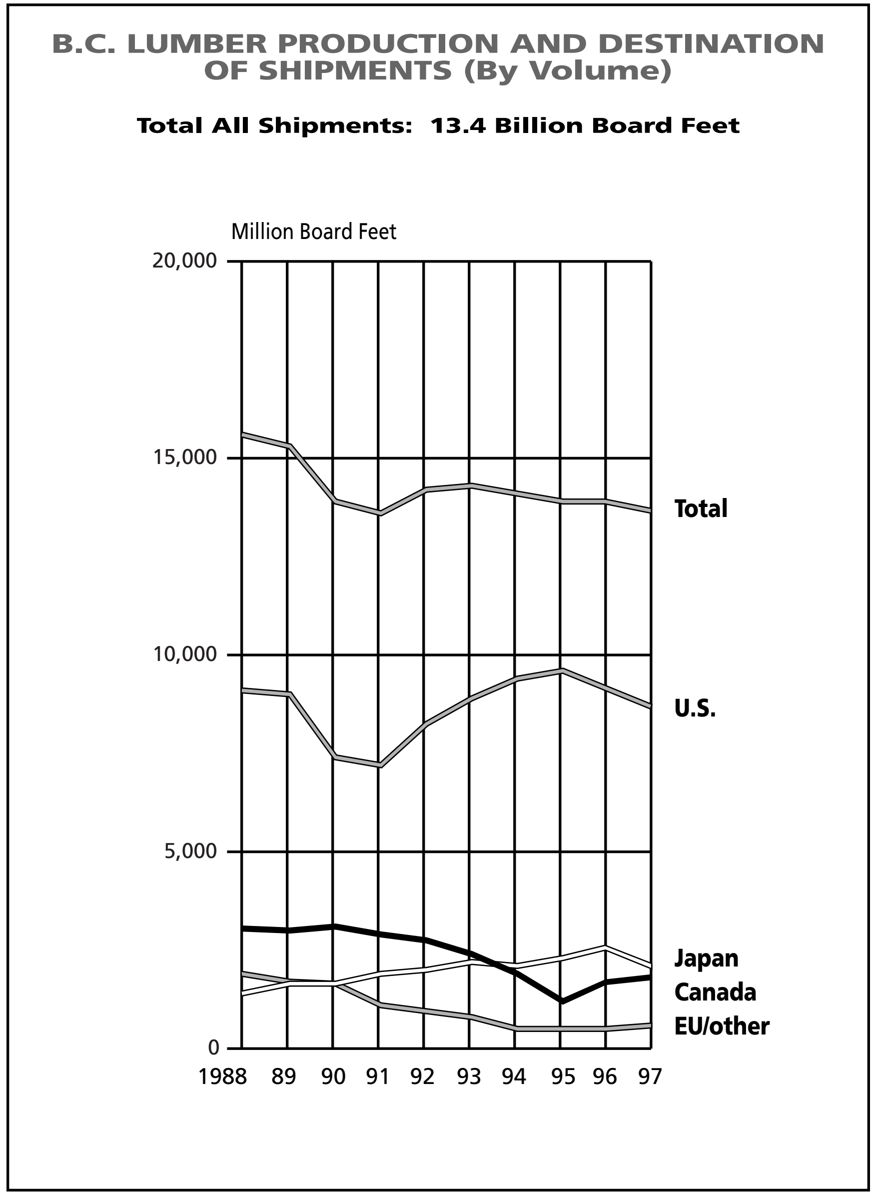
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Direct | 1.3 | 1.3 | 1.2 | 1.2 | 1.3 | 1.3 | 1.3 | 1.4 |
| Direct & Indirect | 3.8 | 3.9 | 3.7 | 3.5 | 3.8 | 3.8 | 3.8 | 4.3 |

*Source: Statistics Canada*

# B.C. LUMBER PRODUCTION AND DESTINATION OF SHIPMENTS (By Volume)

Shipments of B.C. lumber totalled 13.4 billion board feet in 1997, down 3.7 per cent from 1996.

Statistics Canada reported 1997 shipments to the United States were 8.9 billion board feet, down 2.2 per cent from 9.1 billion board feet in 1996. Japan received 2.1 billion board feet, down 19.2 per cent from 2.6 billion board feet. Canada's domestic consumption was 1.9 billion board feet, up 11.8 per cent from 1.7 billion board feet in 1996. The balance 522.7 million board feet was shipped to the European Union and other countries in 1997, up 6.4 per cent from 491.4 in 1996.



## B.C. LUMBER PRODUCTION BY REGION

Total B.C. softwood lumber production was 13.375 billion board feet in 1997, down from 13.845 in 1996.

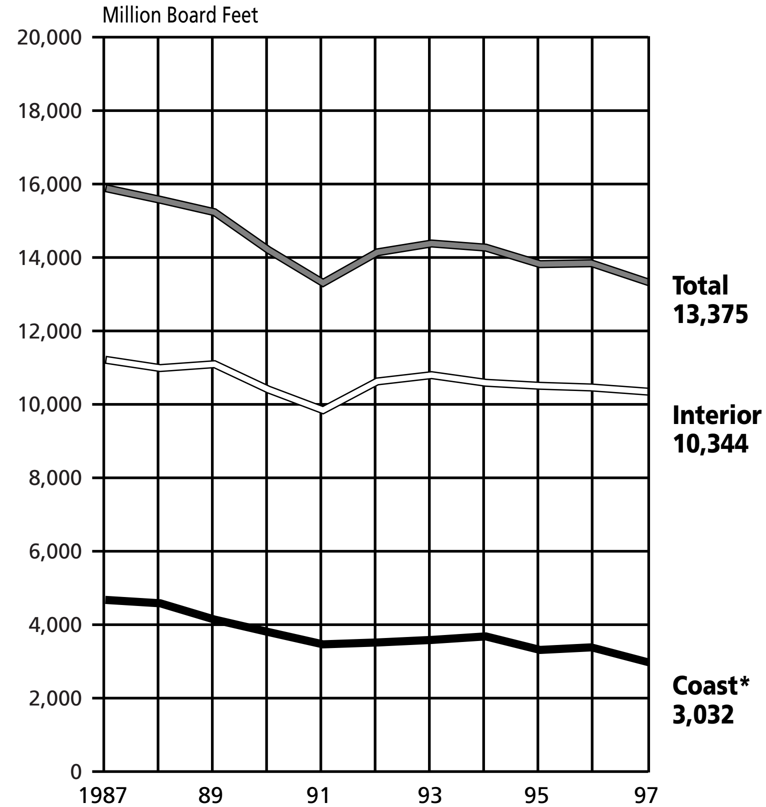
Interior lumber producers accounted for 77.3 per cent of all softwood lumber; the remaining 22.7 per cent was produced by the Coast lumber manufacturers.

Lumber production fluctuates in response to world supply and demand and other factors including price, exchange rates, capacity levels and the impact of trade decisions.

*Source: Statistics Canada*

**B.C. SOFTWOOD LUMBER PRODUCTION BY REGION: 1987 - 1997**

**1997 Total: 13.375 Billion Board Feet**




** Revised for 1992, 1993 and 1994.*

# TRANSPORTING B.C. LUMBER TO MAJOR MARKETS

The cost of transporting B.C. lumber to world markets is critical to the industry's competitiveness.

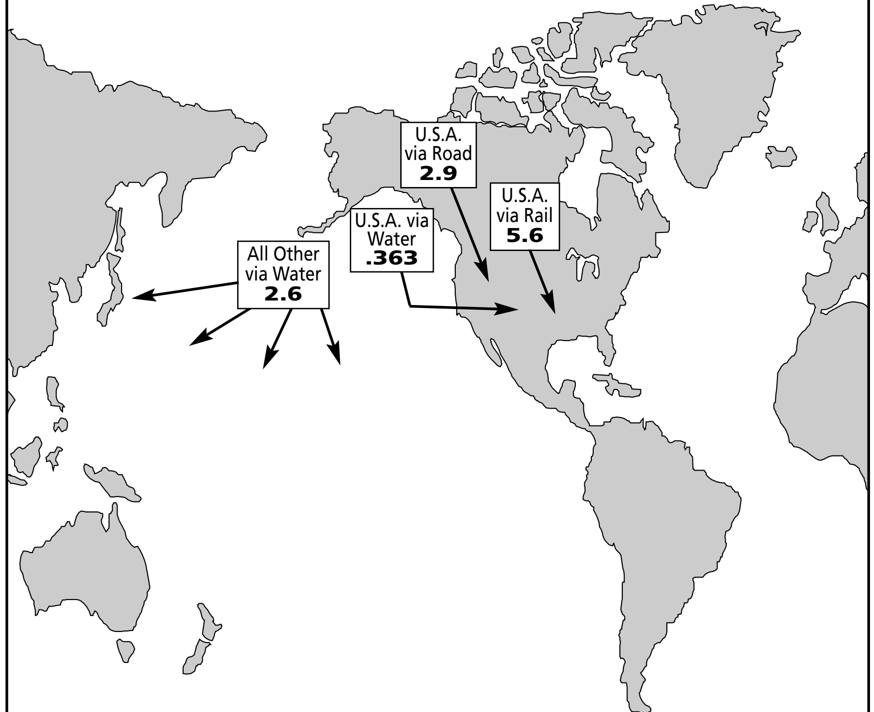
Transportation carriers deliver lumber to the United States market primarily by rail and road. B.C. sawmills shipped 5.6 billion feet, or 63 per cent by rail in 1997, while road accounted for 2.9 billion board feet, or 32.6 per cent and waterborne shipments totalled 363 million board feet, or 4.1 per cent. Overall shipments to the United States totalled 8.9 billion board feet.

B.C. waterborne lumber exports to offshore markets amounted to 2.6 billion board feet in 1997.

*Sources: Statistics Canada and COFI*

**B.C. SOFTWOOD LUMBER EXPORTS BY MODE OF TRANSPORT**

Billion Board Feet



# B.C. MARKET DIVERSIFICATION OVERSEAS

Over the past ten years B.C. has steadily lost market share in European lumber markets.

Progress was made, however, in finding other markets for B.C. lumber under the Cooperative Overseas Market Development Program (COMPD), which involved the forest industries and governments of both B.C. and Alberta as well as the Canadian federal government.

The Pacific Rim markets including Japan, China, South Korea, Taiwan, Australia, other Asia and other Oceania accounted for nearly 2.4 billion board feet of lumber shipments, down from 2.9 billion in 1996. Overall offshore lumber exports were 2.6 billion board feet down from 3.1 billion board feet, in 1996.

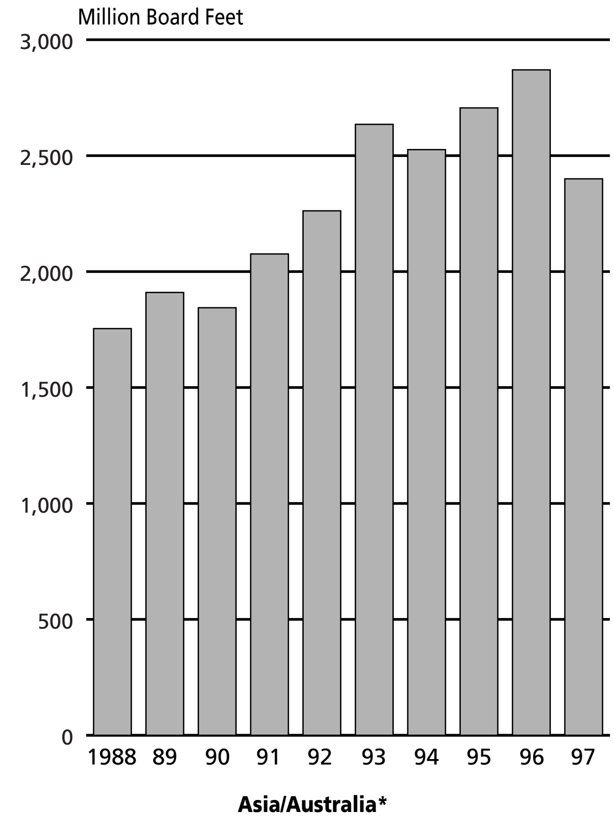
Japan is the B.C.'s largest overseas market for lumber. B.C. lumber exports to Japan have grown from 699 million board feet in 1970 to over 2.1 billion board feet in 1997.

A multi-stakeholder Technical Committee of the Canadian Standards Association (CSA) has developed a national Sustainable Forest Management Standard based on the International Standards Organization (ISO) 14000 Environmental Management System (EMS). Canadian forest industry companies will use the standard as the basis for independent evaluations of their forest practices. Where appropriate, certification will be awarded confirming that the Standard is being complied with. Once the standard is available Canada will also adopt a proposed new ISO Standard, which has become the internationally recognized measure of sustainable forest management.

*Source: Statistics Canada*

**B.C. MARKET DIVERSIFICATION OVERSEAS: 1988 - 1997**

**Total Overseas Lumber Exports 1997: 2.6 Billion Board Feet**
**Total Asia/Australia Lumber Exports 1997: 2.4 Billion Board Feet**

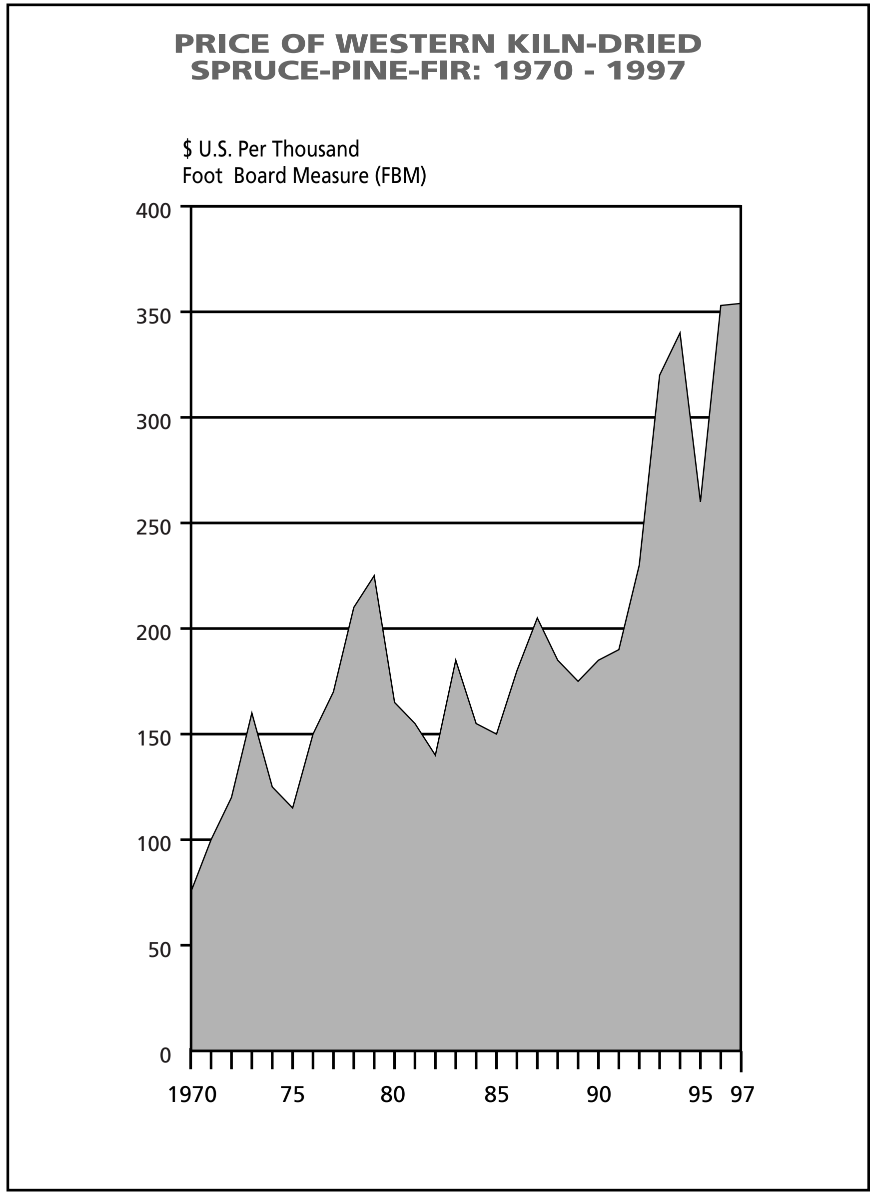



** Includes: Japan, China, S. Korea, Taiwan, Australia, Other Asia & Other Oceania*

Source: *Random Lengths Yearbook*

## PRICE OF WESTERN KILN-DRIED SPRUCE-PINE-FIR

The F.O.B. mill price of Spruce-Pine-Fir (SPF) 2x4 is recognized as the industry benchmark for commodity lumber prices. In 1997 the average annual SPF lumber price was US$354, up one dollar from $353 in 1996. The monthly average price in January was $408, the highest for the year. By mid-year the price fell to $364 and finished the year at a low of $289. Prices are affected by several factors including, supply and demand, trade restrictions, exchange rates and inventories.



## SOFTWOOD LUMBER END USES (U.S. MARKET)

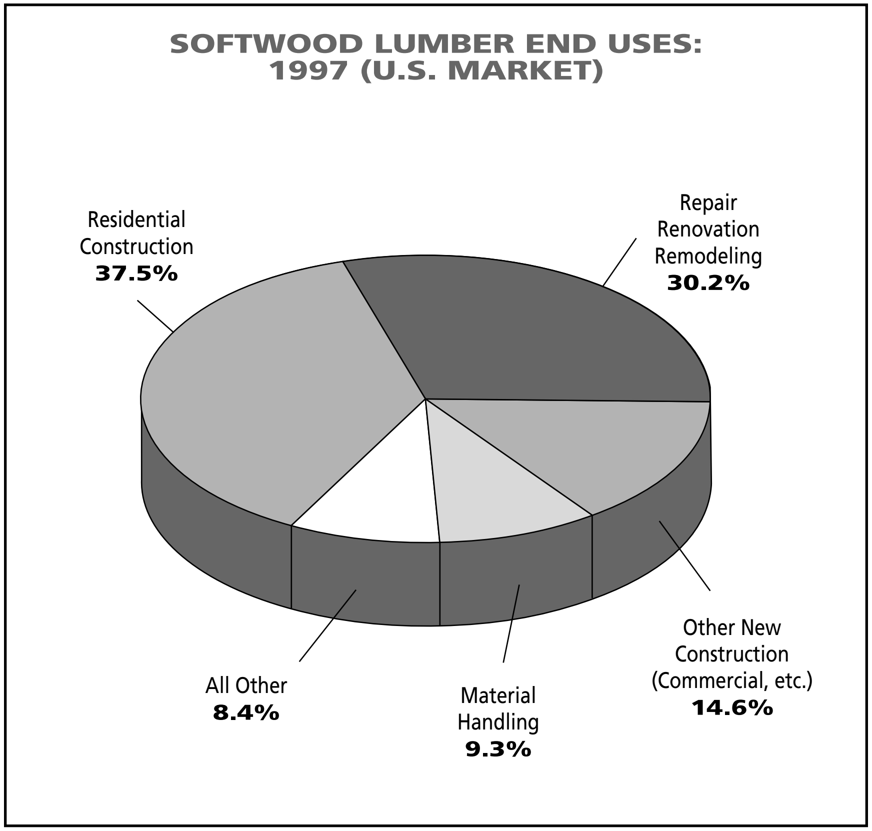
The United States buys more B.C. lumber than any other country in the world.

The end-use consumption of softwood lumber by the U.S. was 50.8 billion board feet in 1997, up marginally from the 50.5 billion board feet recorded in 1996.

Residential housing construction consumed 37.5 per cent of all softwood lumber used in the United States in 1997. The repairs and remodeling market, including the home renovation market, consumed 30.2 per cent of total softwood lumber.

Other new construction, including commercial buildings, accounted for 14.6 per cent in 1997, while material and handling consumed 9.3 per cent. All other accounted for the balance of 8.4 per cent.

*Source: Western Wood Products Association*



Source: Canadian Pulp and Paper Association

## B.C. PULP AND PAPER PRODUCTION

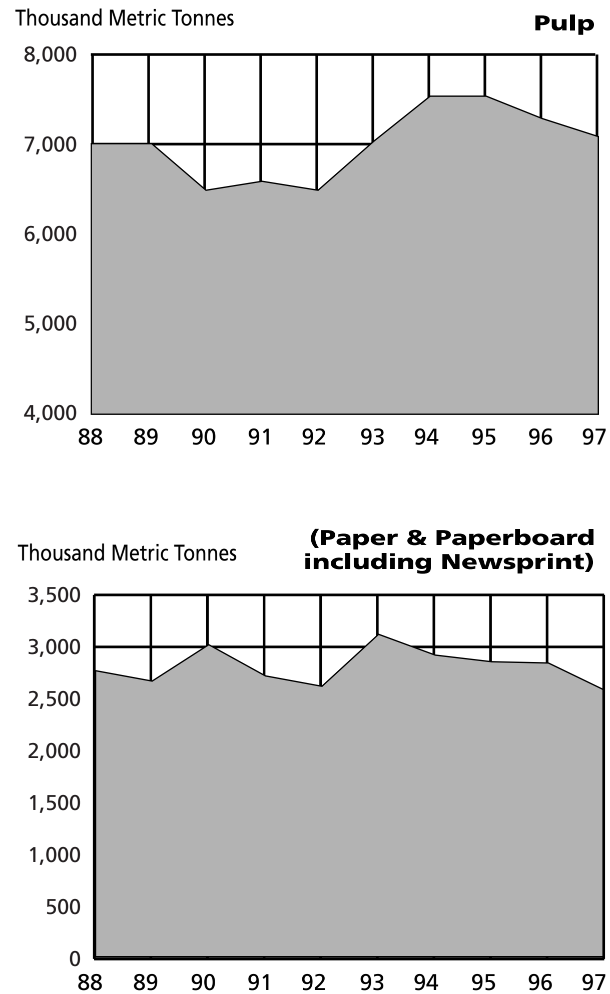
The B.C. pulp industry produced 7,099 thousand metric tonnes in 1997, down from 7,287 metric tonnes in 1996.

Paper and paperboard production (including newsprint) was 2,570 thousand metric tonnes in 1997, down 7.1 per cent from 1996.

Pulp prices have fluctuated rapidly in the past few years and were largely responsible for the industry's financial losses in the past year. In December of 1993 pulp prices were US$390 per tonne, by October of 1994 they had climbed to US$700, reaching an all-time high of US$1,000 per tonne in October of 1995. By December of 1995 prices had started to slide and bottomed out in 1996 at US$500 per metric tonne. Weak pulp prices prevailed through 1997, fluctuating between US$545 per metric tonne in January and US$560 per tonne in December.

The pulp and paper industry in Canada recycled 4.7 million tonnes of paper in 1997, compared with 1.8 million tonnes in 1990. Low prices for recovered paper has encouraged Canadian mills to add more recycled content to their fibre mix - thus sending less to landfills. In 1997 Canada imported 2.0 million tonnes of recyclable paper from the United States. Since 1990 Canadian mills have invested in excess of $1.5 billion in recycling capacity.

**B.C. PULP AND PAPER PRODUCTION: 1988 - 1997**

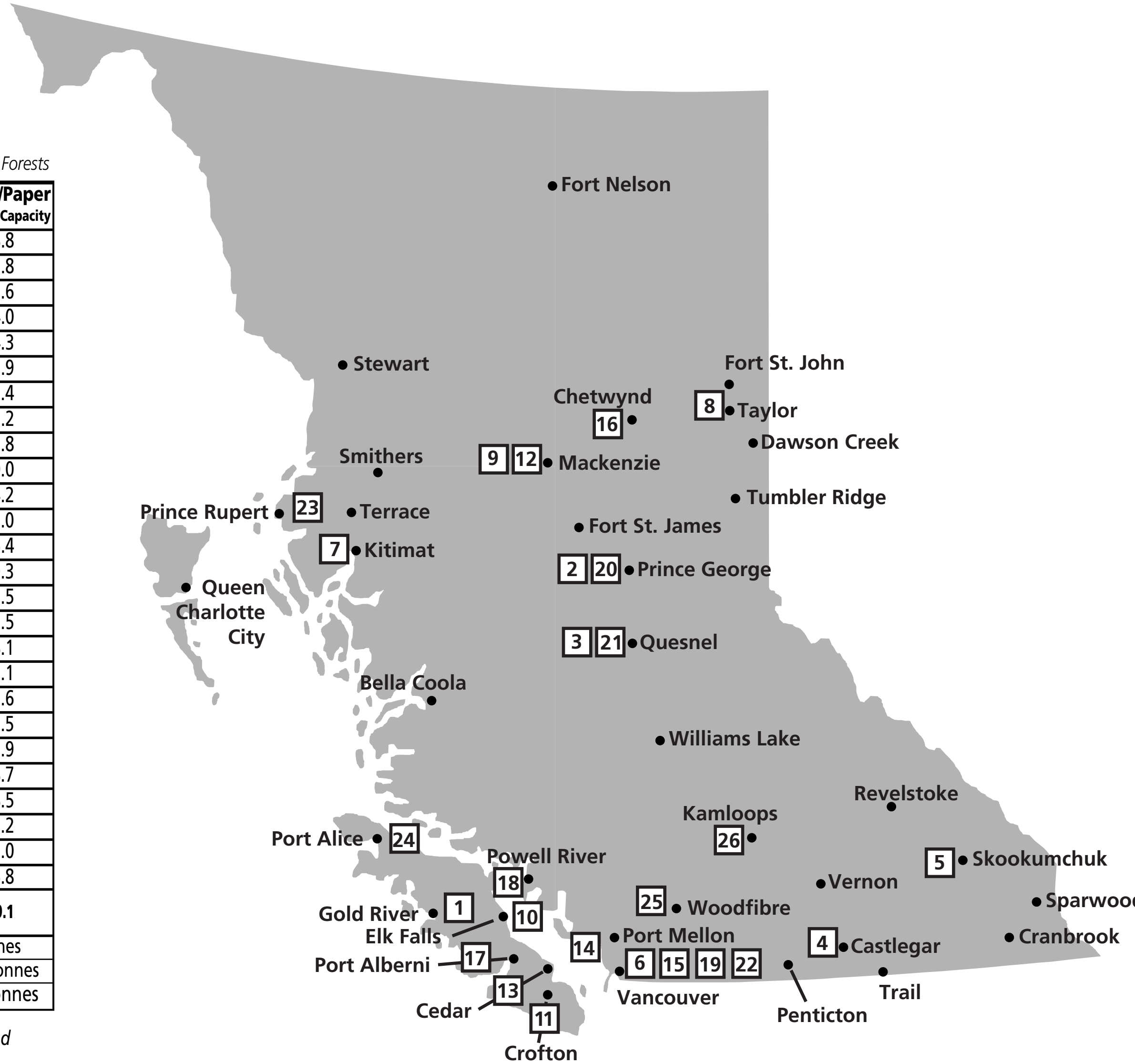


# PULP AND PAPER MILLS IN B.C.

*Source: B.C. Ministry of Forests*

| Map# | Company | Location | Pulp/Paper Annual Capacity |
|---|---|---|---|
| 1 | Avenor, Inc. | Gold River | 258.8 |
| 2 | Canfor Corp. | Prince George | 622.8 |
| 3 | Cariboo Pulp & Paper Co. Ltd. | Quesnel | 322.6 |
| 4 | Celgar Pulp Ltd. | Castlegar | 414.0 |
| 5 | Crestbrook Forest Ind. Ltd. | Skookumchuk | 224.3 |
| 6 | Crown Packaging Ltd. | Burnaby | 163.9 |
| 7 | Eurocan Pulp & Paper Co. | Kitimat | 455.4 |
| 8 | Fiberco Pulp Inc. | Taylor | 213.2 |
| 9 | Finlay Forest Industries Ltd.. | Mackenzie | 189.8 |
| 10 | Fletcher Challenge Canada Ltd. | Crofton | 740.0 |
| 11 | Fletcher Challenge Canada Ltd. | Duncan Bay | 814.2 |
| 12 | Fletcher Challenge Canada Ltd. | Mackenzie | 207.0 |
| 13 | Harmac Pacific Inc. | Cedar | 386.4 |
| 14 | Howe Sound Pulp & Paper Ltd. | Port Melon | 500.3 |
| 15 | Island Paper Mills Company | Annacis Island | 172.5 |
| 16 | Louisiana Pacific Corp. | Chetwyn | 172.5 |
| 17 | MacMillian Bloedel Ltd.. | Port Alberni | 288.1 |
| 18 | MacMillan Bloedel Ltd. | Powell River | 633.1 |
| 19 | Newstech Recycling Inc. | New Westmininster | 165.6 |
| 20 | Northwood Pulp & Timber | Prince George | 517.5 |
| 21 | Quesnel River Pulp Co. | Quesnel | 313.9 |
| 22 | Scott Paper Ltd. | New Westminster | 108.7 |
| 23 | Skeena Cellulose | Prince Rupert | 448.5 |
| 24 | Western Pulp Ltd. Partnership | Port Alice | 162.2 |
| 25 | Western Pulp Ltd. Partnership | Woodfibre | 257.0 |
| 26 | Weyerhaeuser Canada Ltd. | Kamloops | 446.8 |
| **Total Market Pulp & Paper Annual Capacity in Thousand Metric Tonnes** | | | **9199.1** |
| 13 | Mills have an annual capacity of 0 - 299 thousand metric tonnes | | |
| 7 | Mills have an annual capacity of 300 - 500 thousand metric tonnes | | |
| 6 | Mills have an annual capacity of over 500 thousand metric tonnes | | |

* *Market Pulp & Paper Annual Capacity measurements are in thousand metric tonnes based on a 24 hour work day, 345 days per year*



## B.C. PLYWOOD

B.C. plywood production in 1997 was 1.7 million square feet (1.5 million cubic metres) representing 83.0 per cent of total plywood produced in Canada.

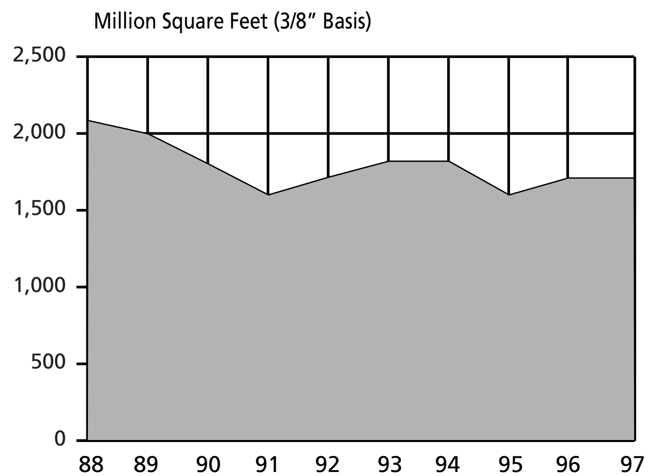
Total Canadian plywood shipments were 2.1 million square feet (1.8 million cubic metres), of which domestic shipments accounted for 1.5 million square feet (1.3 million cubic metres). The balance of 558.0 million square feet (493.9 million cubic metres), or 27.8 per cent, was exported from Canada in 1997.

In spite of the growing market for oriented strandboard (OSB), plywood manufacturers have maintained production through the development of new markets, product innovation and more efficient manufacturing processes.

The increasing production of plywood specialty products and grades designed for specific end uses is expected to continue.

*Source: Statistics Canada and Canadian Plywood Association*

### B.C. PLYWOOD PRODUCTION: 1988-1997




*Source: B.C. Ministry of Forests*

### PLYWOOD MILLS ANNUAL CAPACITY IN MILLION SQUARE FEET 3/8" BASIS

| Map# | Company | Location | Plywood |
|---|---|---|---|
| 1 | Ainsworth Lumber | Savona | 126.0 |
| 2 | Cantree Plywood Corp. | New Westminster | 151.2 |
| 3 | Evans Forest Products | Golden | 144.0 |
| 4 | Federated Co-op | Canoe | 108.0 |
| 5 | Northwood | Prince George | 169.2 |
| 6 | Richmond Plywood | Richmond | 230.4 |
| 7 | Riverside Forest Products | Armstrong | 216.0 |
| 8 | Riverside Forest Products | Kelowna | 151.2 |
| 9 | Tackama Forest Products | Fort Nelson | 194.4 |
| 10 | Tolko Industries | Heffley Creek | 165.6 |
| 11 | Weldwood of Canada | Quesnel | 129.6 |
| 12 | Weldwood of Canada | Williams Lake | 169.2 |
| **Total Annual Plywood Capacity in Millions of Square Feet** | | | **1,954.8** |