

**OUTLOOK FOR HEMLOCK PRICES
& VOLUMES IN JAPAN
AND
WESTERN RED CEDAR PRICES
& VOLUMES IN THE USA**

**FINAL REPORT
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FOR:

Coast Forest & Lumber Association

By:

**Russell E. Taylor
Gerry van Leeuwen**

R.E. Taylor & Associates Ltd.
Forest Industry Strategic Services
Suite 501 - 543 Granville Street, Vancouver, BC V6C 1X8
Telephone (604) 801-5996 Fax (604) 801-5997
retaylor@woodmrkts.com
www.woodmarkets.com

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1 Introduction & Objectives

The Coast Forest and Lumber Association (CFLA) has identified that the current market weakness in Japan coupled with soft structural lumber prices in the U.S. could result in eroding margins at coastal mills that are already facing a tough financial situation. To quantify the overall supply and demand trends impacting coastal suppliers as well as the possible price trends, CFLA approached R.E. Taylor & Associates Ltd. in June, 2000 to provide a brief overview of, and outlook for, the hemlock lumber market in Japan and the cedar lumber market in the U.S. As well, the CFLA has requested a preliminary price forecast for the benchmark products within the two species to indicate what the likely outcome might be for the rest of the year in 2000 as well as in 2001 and 2002. The results of this brief analysis and outlook are to be used for planning the CFLA's next steps in assisting their membership to deal with potential issues or strategic options.

2 Hemlock Lumber in Japan

A brief overview of some of the main market trends in Japan relative to hemlock lumber as well as the likely supply response is presented in this section. The objective is to provide the background to the issues facing hemlock lumber in Japan over the next few years given the expected changes in the market.

2.1 Current Market Trends

Although a recovery from the Asian recession was underway in 1999, it appears from import trends that the Japanese log and lumber import business is weakening further and is not going to return to a pre-recession "business as usual" mode for North American log and lumber exporters. Housing starts forecasts and statistical analysis of Japan lumber and log imports for the last five years confirm a number of importing and product-use trends that will continue to distress Douglas fir and hemlock/balsam log and lumber exporters from North America's West Coast regions.

1) Japanese housing starts — weaker

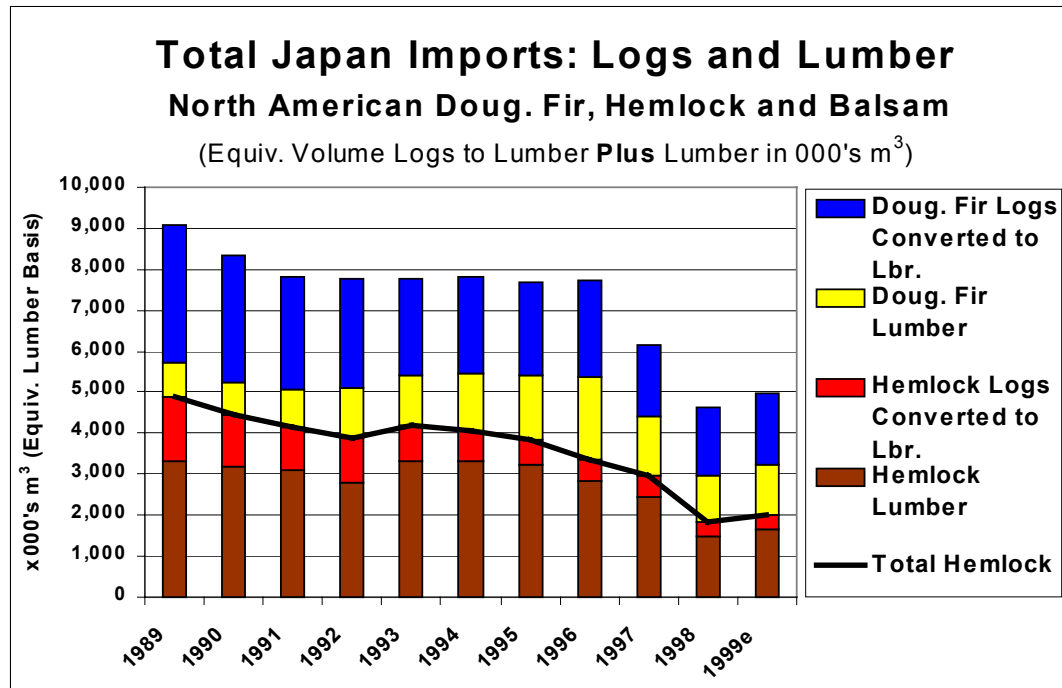
Annual housing starts in Japan for the next five years are forecast to be in the range of 1.15–1.2 million units. This forecast rate is approximately 20%–25% lower than the housing-starts rate of the pre-recession mid-1990s. The forecast for lower housing starts translates, approximately, into a three million m³/year (1.3 billion bf) drop in consumption of structural lumber in new home starts.

2) Imports of Douglas Fir and Hemlock/Balsam logs and lumber — weaker

Total Japanese imports of coastal North American (Canada and the U.S.) Douglas fir and hemlock/balsam logs (converted to lumber basis) and lumber have decreased dramatically. From 9.5 million m³, they have dropped to five million m³ (lumber basis) by 1999, a decrease of 47% in 10 years.

The largest decrease has been in hemlock/balsam. When the volume of North American hemlock/balsam logs is converted to a lumber basis and combined with green hemlock/balsam lumber (finished and rough), total hemlock/balsam imports have decreased

from the 1989 peak of about five million m³ to an estimated two million m³ in 1999. This represents a huge reduction of 60% over 10 years.



Douglas fir log imports by Japan (mainly from Washington and Oregon) have also declined steadily: from a peak import volume of 6.7 million m³ in 1989, they have dropped by 50% to 3.5 million m³ in 1999. Imports of green Douglas fir lumber (mainly from B.C.) peaked in 1996 at two million m³ and have decreased in the last three years by about 40% (to 1.24 million m³). Since 1989, total Douglas fir (logs converted to lumber plus lumber) imports have decreased by 29% in comparison to the equivalent total volume of hemlock/balsam imports, which have decreased by 60% during the same time frame.

In 1999, Japanese imports of all logs and lumber improved by about 18% from the lows in 1998 (based on logs converted to lumber plus lumber). However, hemlock/balsam and Douglas fir (logs converted to lumber plus lumber) are estimated to have increased by only about 9% in 1999. The much slower rebound for North American Douglas fir and hemlock/balsam log and lumber imports is a strong indication of a structural change in the market demand for these species.

3) **Green Hemlock/Balsam and Douglas Fir usage per Japanese traditional house — declining**

Imports of green hemlock/balsam and Douglas fir structural lumber and logs have declined as a result of significantly lower usage of hemlock/balsam and Douglas fir lumber in traditional Japanese post-and-beam housing. The estimated volume of hemlock/balsam and Douglas fir structural lumber used per traditional Japanese house (the ratio of the total imported volume of logs and lumber to Japanese post-and-beam housing starts) has declined since 1983.

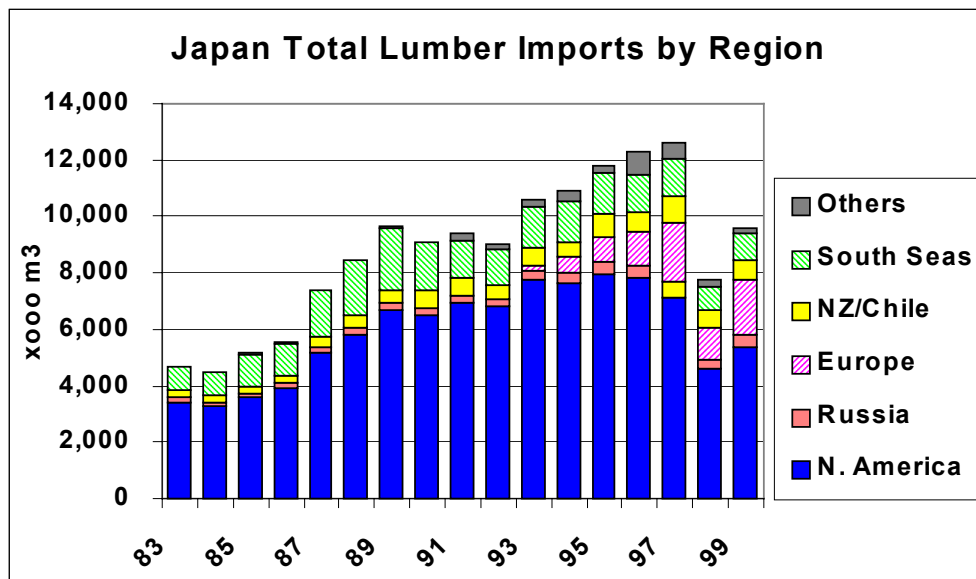
From an average consumption of 7.5 m³ (3,180 bf/unit) of hemlock/balsam structural lumber per traditional Japanese house in 1990–92, the average usage has decreased by 45% to about 4.2 m³ (1,709 bf/unit). This reduction in per-house usage has lowered the overall demand for hemlock/balsam structural lumber by about 1.7 million m³ per year (725 million bf). The reduced consumption of structural hemlock/balsam lumber in post-and-beam housing is equivalent to the Japanese structural lumber output achieved at 16 to 18 West Coast sawmills!

Green Douglas fir structural lumber usage per traditional house peaked in 1996 at about 7.0 m³ per house; this has declined by around 10% in the last three years. The drop would have been larger (15%) except for the approximately 400,000 m³ of kiln-dried Douglas fir posts and beams that are included in the usage volumes. Up to 1999, Douglas fir sawmills in Japan were producing virtually all kiln-dried posts and beams.

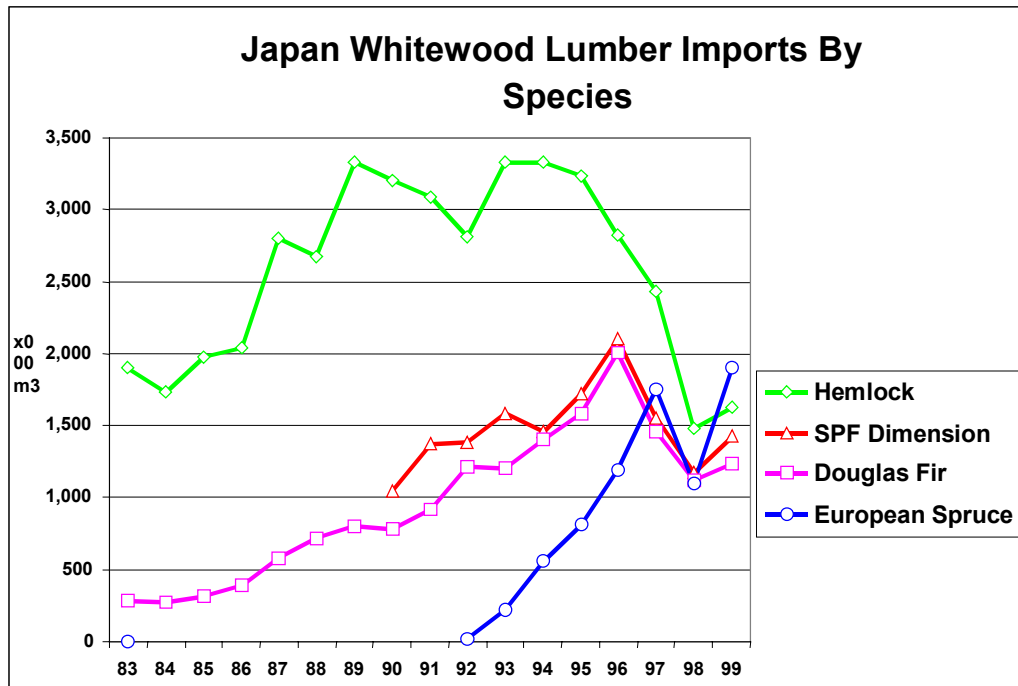
Current demand forecasts indicate that the volumes of green hemlock/balsam and Douglas fir structural lumber used per traditional Japanese house are expected to continue to decrease by as much as 40% to 50% over the next two to three years.

4) **Japanese imports of white wood structural lumber — changing**

The following two graphs depicts the import trends of the major white-wood structural lumber products imported by Japan from 1983 to 1999. The decreasing volumes of North American shipments are in contrast to the increasing volumes of lumber from Europe and, to a lesser degree, Russia, Chile and New Zealand. The same trend is expected to continue throughout the year 2000 and beyond.

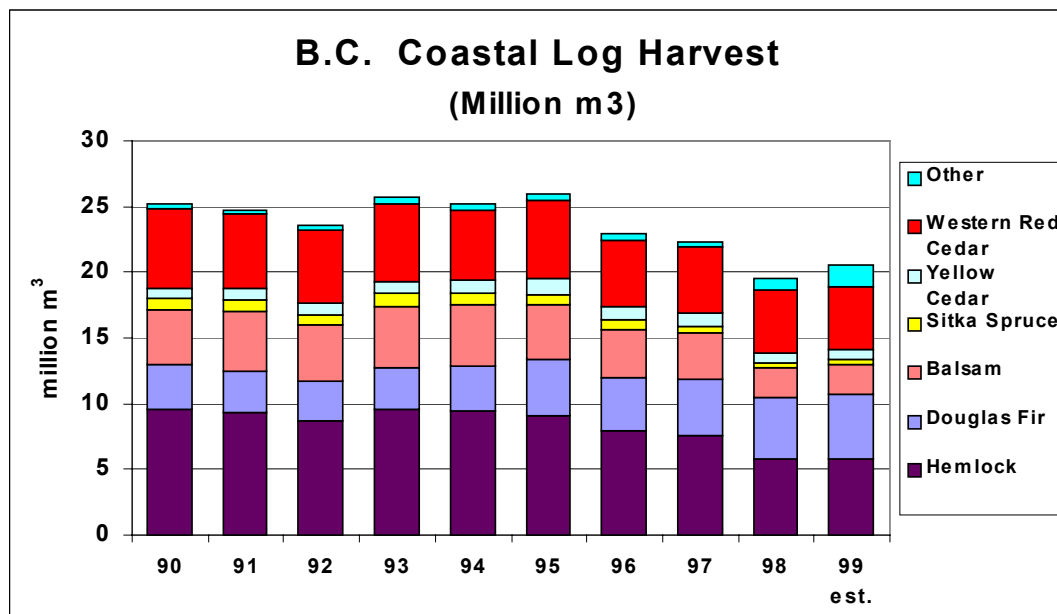


The imported volume of green hemlock/balsam and Douglas fir lumber has decreased significantly over the past five years in comparison to Interior kiln dried (KD) SPF (which has stayed relatively constant) and European KD spruce (which has shown incredible growth). In 1999, imported European KD spruce lumber will exceed the imported volume of green hemlock/balsam lumber for the first time – a real sign of change!



5) **B.C. Coastal log harvest has been decimated by plunging Japan imports lumber — no significant change to this trend is expected without KD products for Japan or establishing new markets**

Reduced demand in Japan for hemlock/balsam and Douglas fir logs and green structural lumber has had a major negative impact on the B.C. coastal log harvest. Although the region’s annual log harvest has been reduced overall by about five million m³ in the last five years (from 25 million to 20 million m³), the reduction has not been applied uniformly to all species.



In an attempt to harvest what the markets will buy at above-cost selling prices, coastal loggers have increased the selective logging of Douglas fir from three million m³ in 1994 to almost five million m³ in 1999. In 1999, Douglas fir will represent about 25% of the coastal log harvest, even though it makes up only 10%–12% of the coastal forest. Conversely, the hemlock/balsam forest profile has seen major reductions in its timber harvesting production in the B.C. Coast region: its annual log harvest has decreased by about six million m³ since 1993. This compares to the entire coastal log harvest, which has decreased by 5.1 million m³ during the same period!

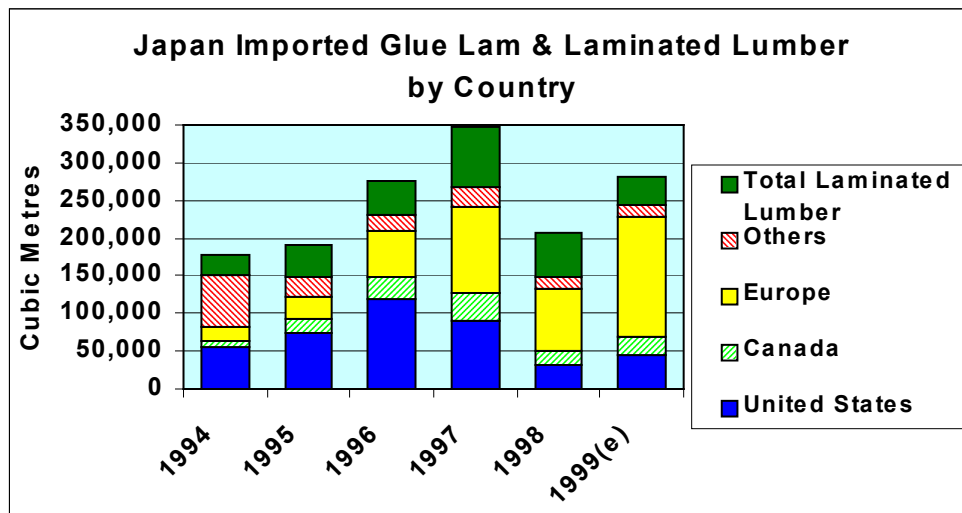
The concern with this selective logging strategy (i.e., avoiding low-priced hemlock/balsam in favor of higher-priced Douglas fir, yellow cedar and red cedar) over a longer period of time is that it will lead to a future coastal B.C. forest of mainly lower-valued hemlock/balsam. This is a marked change in fortune from coastal B.C.’s glory days of the early to mid-1990s.

6) Laminated Lumber in Japan — A Rising Trend

One area that will continue to feature continued high growth – both in domestic production and in imports – is the engineered (kiln dried and laminated) vertical post and horizontal beam market.

For west coast North American lumber exporters, lumber exports to Japan peaked in 1995 at 7.9 million m³ - some two years before the start of the Japanese recession, but the same year as the Kobe earthquake! The significance of this timing is that the Kobe earthquake heralded the start of the Japanese market's change in demand for conventional lumber supplies such as green hemlock for engineered and kiln dried lumber that would provide greater perceived value and/or resistant to the threat of earthquakes.

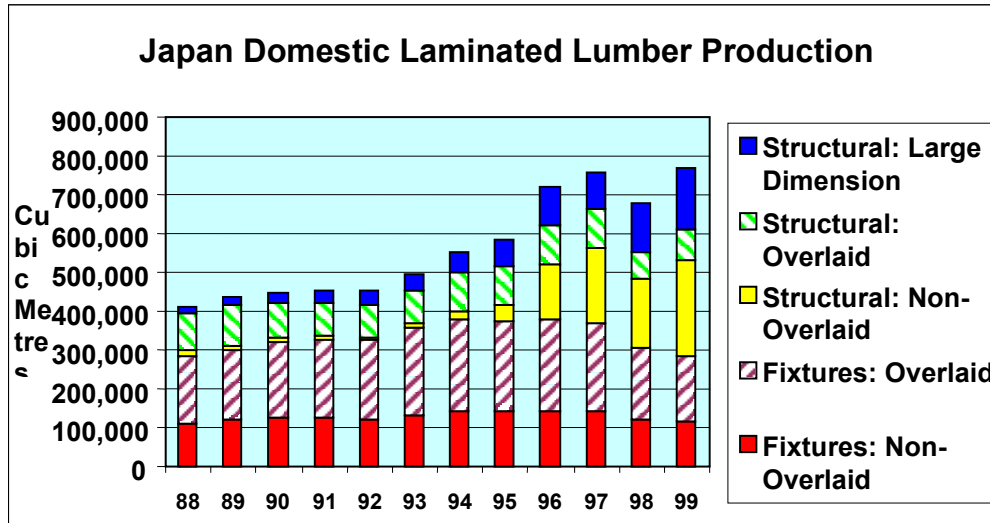
Of increasing concern to West Coast hemlock and Douglas fir lumber exporters is the fact that European lumber exporters have quickly regained approximately 80% of their decline (between 1997 and 1998) in 1999, or from 1.12 million m³ to 1.9 million m³. The European producers have set a short-term goal of 25% market share of imported lumber to Japan by 2001. The key to their success has been their ability to supply higher valued, quality products that the Japanese end users want to buy on a cost competitive basis. Many of their added value (engineered and/or kiln dried) finished lumber products are priced 50% to 100% higher (on a US\$ CIF-Japan basis) than North American green coastal Hemlock and Douglas fir products.



a) Engineered Posts & Beams

The acceptance and growing preference by Japanese home builders and home buyers for strength and performance-rated structural building products has created phenomenal growth potential for engineered structural products including laminated lumber and glue-lam beams as well as LVL lumber. The laminated post and beam sector has doubled its size in since 1993 while more traditional solid green hemlock and Douglas fir structural lumber imports have decreased by 35% to 50%. The future market share growth for the engineered wood product segment is forecast to be exceptional over the next three to five years. These products provide what the structural lumber market is looking for: predictable quality, performance

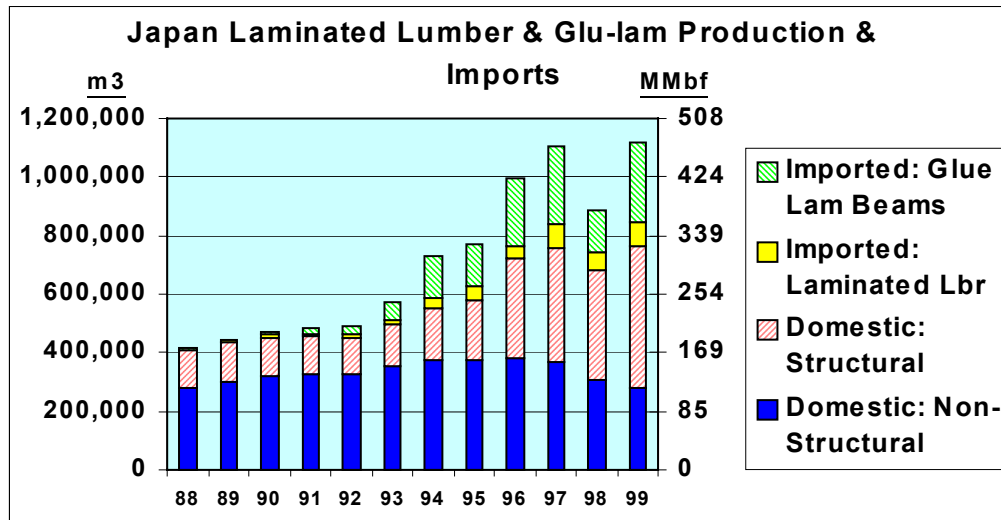
based grading, and guaranteed performance – where price may be less of an issue as compared to traditional products.



b) Laminated Lumber Market Size

The total imported and domestically-produced volume of laminated and glue-lam lumber has more than doubled in ten years: total consumption has increased from about 470,000m³ in 1990 to over 1 million m³ in 1997 (200 million bf to over 425 million bf). Domestic production represents the largest source of laminated and glue-lam products, or about 750,000 m³ in 1999.

Imports have increased ten-fold during the same period to 271,000 m³ for glue-lam lumber products and almost 100,000 m³ for laminated lumber in 1999. The imported volume of laminated and glue-lam lumber recovered rapidly from its 1998 setback to actually surpass pre-recession levels (to a combined volume of approximately 370,000 m³).



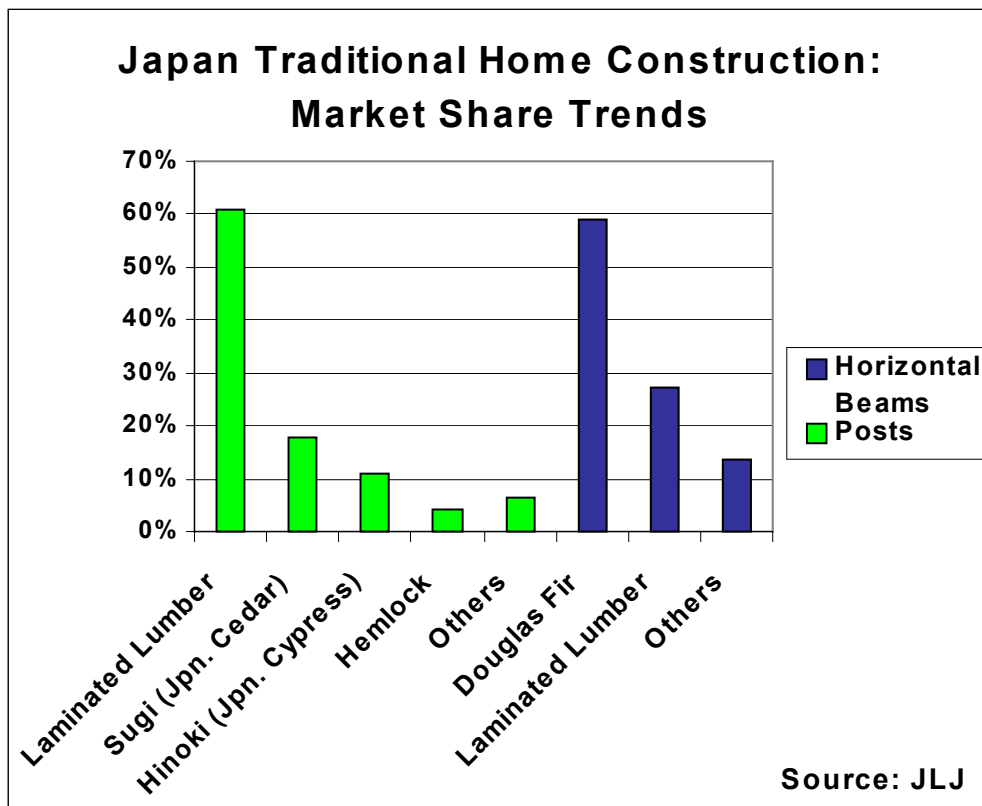
The United States and Canada have become smaller players in the glue-lam export business to Japan over the past three years and have lost significant market share. U.S. volume has decreased by about 50% since 1997 while Canadian volume is lower by about 30%. Austria (now the largest country supplier), Sweden, Finland, New Zealand and Russia have significantly increased supply over the past two years.

There are three main end-use product categories that make up the post and beam frame within the traditional Japanese house:

- Posts – “Hashira” and “Keta”, or vertical posts (105mm or 120 mm squares);
- Horizontal Beams – “Hirakaku” (105/120mm x 125/350mm) horizontal beams; and
- Horizontal Squares - “Dodai” used as sills, and “Moya” or roof purlins (90, 105, and 120 mm squares primarily in 4m lengths).

c) Vertical Post Market

The 5-ply laminated vertical post has gained approximately 60% of the post market for the traditional post and beam wooden house over the past five to eight years and has eroded green hemlock’s share rapidly to only about 5% today. The laminated post market, however, has quickly become oversupplied by domestic Japanese, European, and other (New Zealand, U.S.A., Canada) suppliers. As a result Yen-based laminated lumber prices slipped during 1999 while most other lumber products have improved since reaching a market bottom in mid-1998.



The narrow price gap (approximately US\$400/Mbf) between imported Spruce lamina (laminating blanks) and a finished 5-ply laminated Hashira (105mm x 105mm x 3m) post is an indication of the competitive pricing and the limited margin potential evident in the domestic Japanese post laminating industry today.

d) Horizontal Beam Market

The green hirakaku beam market started to fall out of favor to kiln dried and glue-lam products following the Kobe earthquake in 1995.

The beam market consumes about 2.5 to 2.7 million m³ per year (1 to 1.2 billion bf). Currently, kiln dried and glue-lam beams have about a 40% market share of the horizontal beam market while the balance is green solid Douglas fir and other species. It is expected that the glue-lam beam market share will increase by 500,000m³ per year (from 600,000 m³ to 1.1 million m³/year) over the next two years while the kiln dried solid wood beam market will increase by another 100,000 to 200,000m³/year from its current volume of about 400,000 m³. At this forecast rate of growth, glue-lam beams and kiln dried beams will increase their combined beam market share to approximately 65% by 2002.

Japanese companies that consume domestically produced and imported glue-lam stock have announced major expansions of glue-lam beam manufacturing capacity. New glue-lam beam manufacturing capacity has also been announced in whitewood exporting countries like Finland, Sweden, and Germany. Europe has at least 26 JAS certified glue-lam plants where six mills involve Japanese ownership.

Glue-lam beams are preferred over kiln dried beams if the price premium for glue-lam is less than about 10,000Yen/m³ (US\$95/m³). Kiln dried solid beams are perceived inferior to glue-lam as the Japanese kiln drying companies are only drying the beams to an average of 19% to 20% moisture content. This means that the beams still “move” as they dry down to 10% to 12% moisture content as construction is completed and the house is closed in. Drying solid 105 mm and 120 mm thick beams to 10% to 12% is done on a limited basis, as the process is very expensive and has a high probability of fiber damage and increased rejects or fall-down grades – most notably if it hemlock is used.

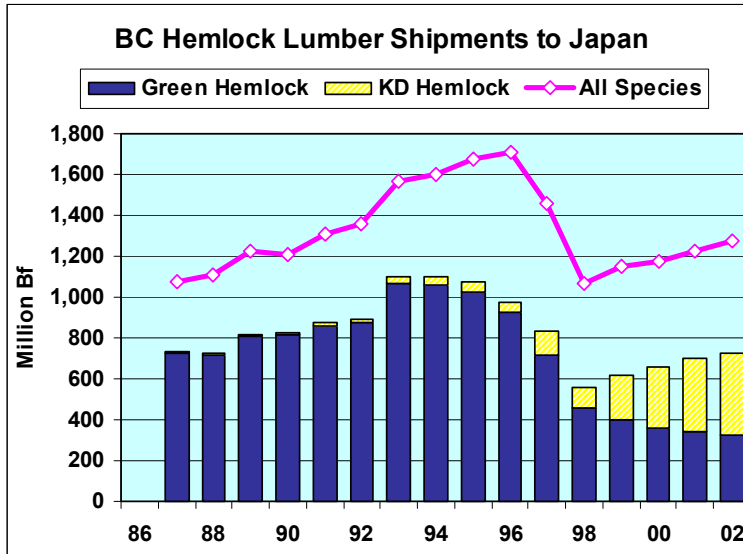
There is a considerable premium for Douglas fir glue-lam beams produced in North America or Japan as compared to Spruce beams produced in Europe or Japan. The current market premium is approximately 8,000Yen/m³ or US\$170 to \$190/Mbf (US\$70 to \$80/m³). The glue-lam Hirakaku beam has captured about 15% of the beam market over the past three to four years. The different species being used for lamina are Douglas fir, Spruce (European, North American, Russian), Pine (Russian, European) and domestic species. A large volume of the Spruce, Douglas fir and Pine lamina consumed in Japan is produced in Japan from imported logs.

e) Laminated Lumber Outlook

Post and beam components represent about half of the total amount of lumber used in the construction of the average traditional post-and-beam home. With 1999 housing starts of 1.2 million and approximately 40% of the new home starts being traditional post-and-beam construction, the volume of lumber consumed by this sector will be about 11 million m³, or approximately 5 billion bf. Consequently, the potential market size of post-and-beam components is approximately 5 to 6 million m³ (2.5 billion bf). If 80% of the current solid green volume is displaced by glue-lam and/or kiln dried products, a market potential exists for an additional 1 million m³ per year (400 million bf) of glue lam and/or kiln dried beams. A major product substitution change will continue to occur in the horizontal beam and square component sector, where the 50 to 60% of the market that was still solid green lumber products (as of early 1999) will be under siege. As a result, engineered wood – and especially laminated beams – represent a unique and sustainable growth opportunity for exporters to Japan.

2.2 Hemlock Lumber Production Volumes

B.C. hemlock lumber shipments to Japan peaked in the mid-1990s and have declined rapidly since 1995. As the market's demand for engineered wood and kiln dried products has expanded rapidly, the demand for green hemlock has slumped badly. The outlook for green hemlock lumber is for continued reduced demand as the market responds to the introduction of the Japan Housing Warranty program. As a result, the demand for kiln dried hemlock is forecast to increase - but only as fast as new kilns are installed and new products are made. As a result, about half of all hemlock shipments are expected to be kiln dried products by 2001 or 2002.



BC Hemlock Lumber Shipments to Japan (MMbf)

	Green Hemlock	KD Hemlock	Total Hemlock	All Species
87	724	7	731	1,078
88	718	7	726	1,106
89	812	8	820	1,227
90	821	8	829	1,212
91	860	18	878	1,305
92	873	18	891	1,355
93	1,064	33	1,097	1,567
94	1,059	44	1,104	1,602
95	1,027	52	1,079	1,672
96	926	51	978	1,710
97	713	120	833	1,461
98	457	105	562	1,071
99	404	214	618	1,153
00	362	293	655	1,175
01	343	357	700	1,225
02	327	398	725	1,275

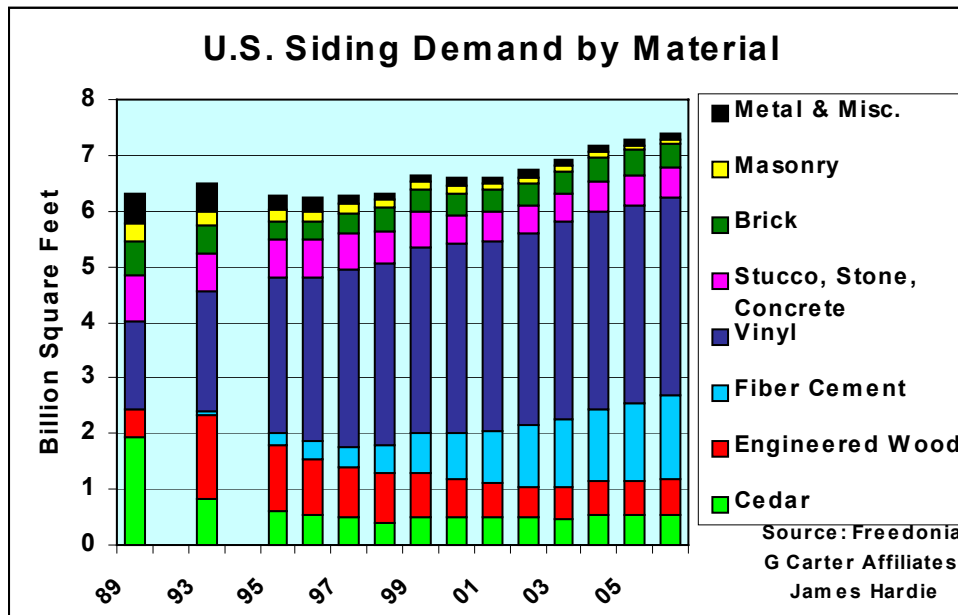
Note: The forecast for total volume is by R.E. Taylor & Associates Ltd. and the forecast for the volume of kiln dried hemlock is by CFLA. Green & kiln dried hemlock volumes estimated for 1987 to 1994.

3 Western Red Cedar in the USA

3.1 Current Market Trends

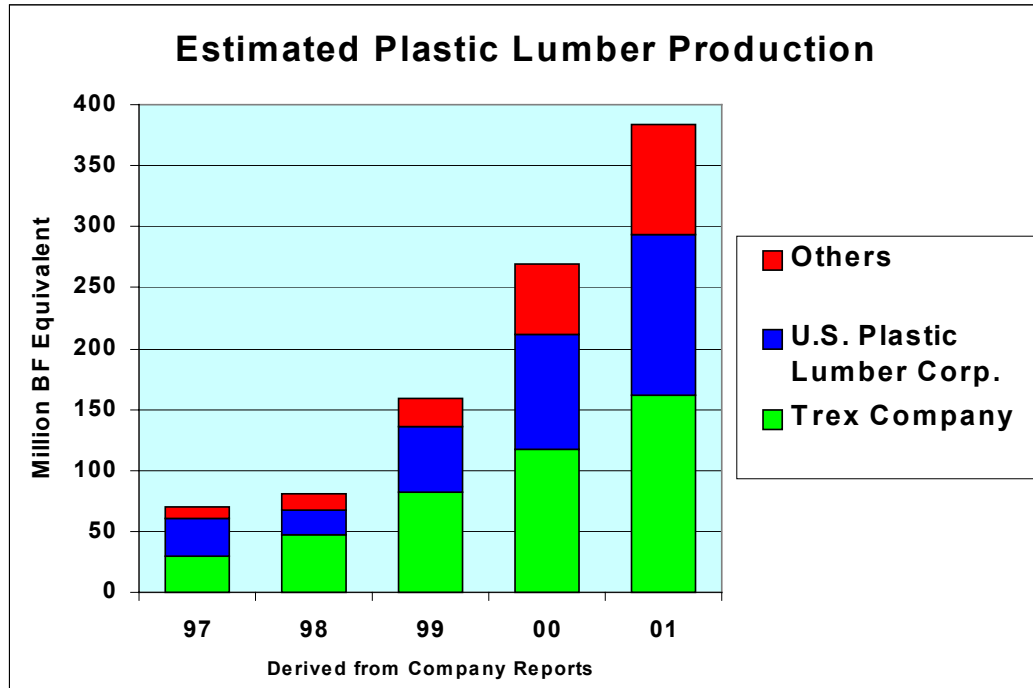
Unlike hemlock in the constrained Japanese market, western red cedar has enjoyed stable U.S. demand from declining lumber production due to reduced harvests from coastal B.C. Reduced lumber supplies have also been a benefit for cedar in the North American and export markets, as cedar has few substitutes in the form of other wood species (i.e., redwood, where harvests are also in decline). The coastal cedar grade mix is most heavily weighted to merchantable grades (standard & better boards or #2 structural & better dimension), tight knot appearance grades, and more limited volumes of clears.

While cedar has developed a number of niches in the siding and decking market as a durable or naturally preservative wood product, its position is being eroded by a number of substitute non-wood products. In siding, the volume of cedar has steadily declined in the 1990s but is expected to hold its market share steady despite an overall growth in siding demand. Siding competition from fiber cement and vinyl products has especially been intense, while engineered wood (OSB) is also making a comeback.



In decking, treated southern yellow pine dominates the 3 billion bf market with a 70 to 75% market share, led by aggressive marketing programs and generally lower prices than other products. Cedar and redwood each account for approximately 5% of the market; other treated wood species represent a further 10% and other wood products including imported tropical hardwoods account for the balance.

A new competitor – plastic decking lumber - has emerged on the market and rapid growth is forecast. While the anticipated volumes are small, the impact of substitutes to cedar are showing up in the moderately to high priced products, where plastic decking and imported tropical hardwood have prices that are higher than tight-knotted cedar products.

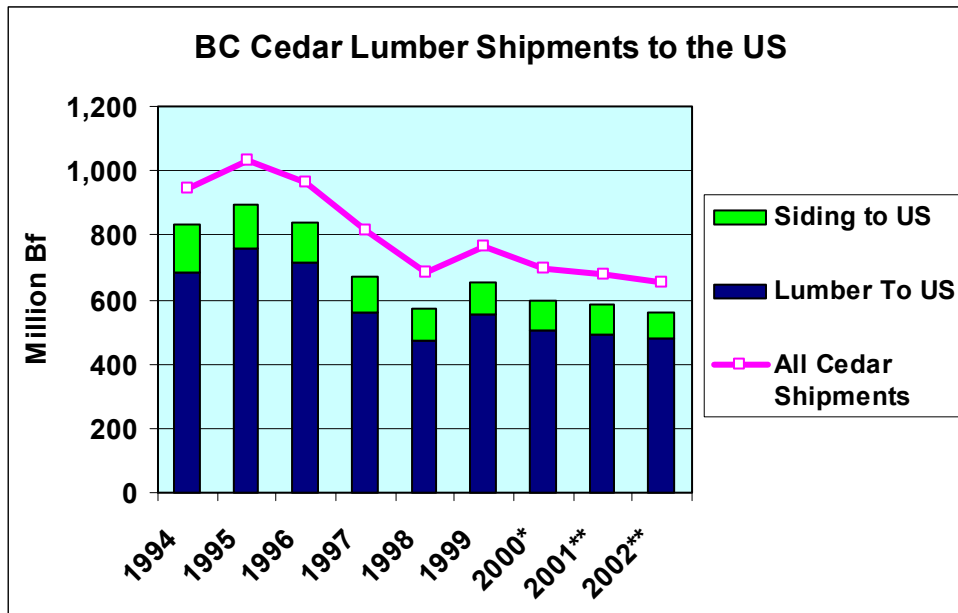


3.2 Cedar Lumber Production Volumes

B.C. cedar production has declined since the early 1990s when it averaged between 1 billion and 1.1 billion bf per year. During this period, coastal B.C. cedar averaged between 80% and 85% of total shipments.

Since 1996, cedar shipments have declined to between 700 and 800 million bf, mainly from reduced coastal timber harvests that, in turn, have been driven by the slumping demand and prices for hemlock in Japan. Between 2000 and 2002, it is forecast that the cedar log harvest will remain constrained resulting in total shipments under 700 million bf per year.

Cedar shipments to the U.S. represent the bulk of B.C. cedar sales where they have averaged 85% of all shipments during the 1990s.



BC Shipments of Western Red Cedar to the U.S. (MMbf)

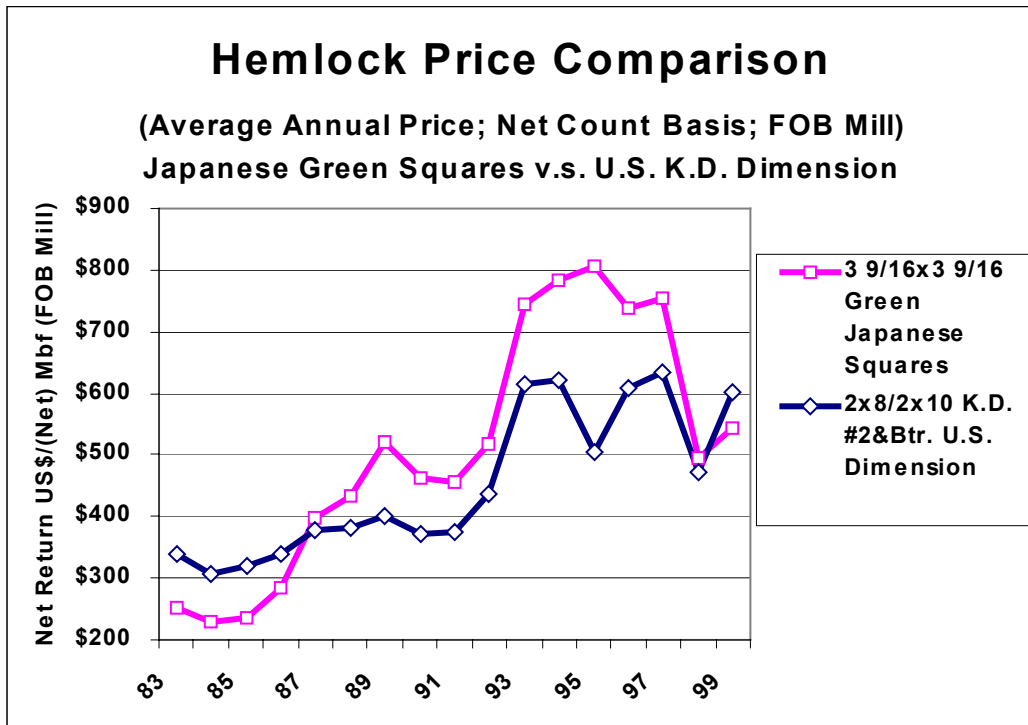
	94	95	96	97	98	99	00*	01*	02*
Lumber	682	758	714	557	474	554	506	493	476
Siding	150	137	125	115	96	100	92	89	85
Total US Shipments	832	895	838	672	569	654	597	583	561
Total Production	947	1,029	964	816	687	763	697	680	655

4 Price Outlook

4.1 Hemlock Historical Trends

The decrease in market demand for green hemlock/balsam and Douglas fir structural lumber for Japanese post-and-beam houses is reflected in the pricing of these products in comparison to alternate product options for both species.

The hemlock/balsam price comparison graph for the years 1983 to 1999 shows the market price (FOB mill equivalent, US\$/Mbf, on a net count basis) of 3-9/16" x 3-9/16" green (Japanese) squares in comparison to 2x8" and 2x10" kiln-dried (KD) dimension sold in the U.S. market. The trend line shows that a price advantage in favor of green squares started in the late 1980s. This premium continued to increase until demand for Japanese green hemlock/balsam squares peaked in 1995. Since 1998, the prices for higher quality 3-9/16" squares have been near or below the prices for 2x8/10 dimension lumber (NLGA grades that permit wane, holes and other defects not permitted in the Japanese squares). This trend has reversed in mid-2000 as U.S. dimension lumber prices have plunged while Japanese squares have remained close to their 1999 price levels.



Due to the increasing premium in favor of green Japanese squares in the early 1990s, many coastal hemlock/balsam sawmills in B.C., Washington and Oregon converted their mill's production to Japanese squares and away from other lower-margin markets including the U.S. As

per-house usage and total number of new post-and-beam starts in Japan started declining in 1996, the hemlock/balsam square premium rapidly disintegrated. The green hemlock/balsam square premium that had existed for about a decade disappeared - by late 1997, it had become a discount to U.S. KD hemlock/balsam dimension. Being restricted or dedicated to the Japanese lumber market became a major liability for West Coast North American sawmillers in the late 1990s.

Japan-focused Washington and Oregon sawmills, with unrestricted access to the U.S. market, began shifting their sawmill production away from Japanese products to U.S. dimension lumber in 1996. By late 1997, almost all hemlock/balsam lumber production from Washington and Oregon sawmills was being directed at the profitable U.S. dimension market. In 1998, the hemlock/balsam U.S. dimension market was profitable enough to support the greenfield construction of two new hemlock/balsam second-growth, small-log sawmills cutting U.S. dimension lumber.

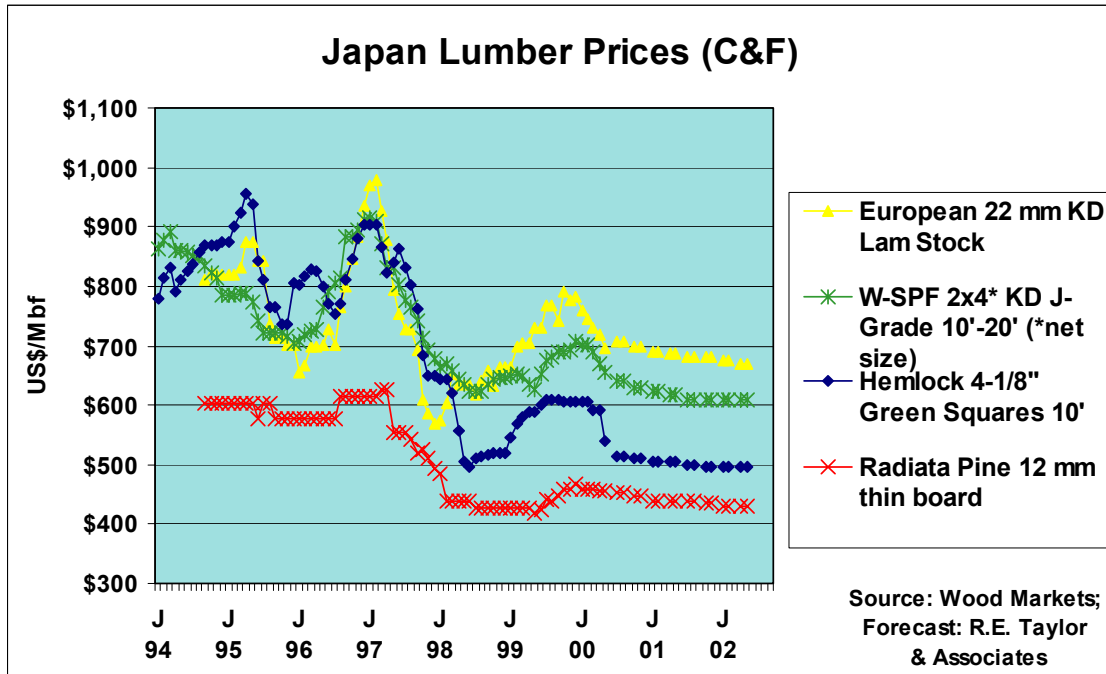
In 1996 and 1997, B.C. companies (especially coastal mills) started curtailing U.S. dimension lumber production and closing inefficient sawmills due to the quota restrictions of the Softwood Lumber Agreement. The most efficient B.C. Coast hemlock/balsam sawmills have continued cutting Japanese squares, but at market prices that has reflected a significant margin discount to the U.S. KD hemlock/balsam dimension market.

The inability of B.C.'s coastal lumber producers to switch their production to the higher-return U.S. dimension market has kept market prices for Douglas fir and hemlock/balsam logs lower in B.C. than in Washington and Oregon. The current log price discrepancy has encouraged imports of B.C. Coast sawlogs by U.S. sawmills looking to source incremental log supplies, with an eye toward raising profitability of producing green and kiln-dried Douglas fir and hemlock/balsam dimension for their domestic market. This has caused the B.C. coastal industry to regress to becoming log exporters, a far cry from its previous position as a premium exporter of lumber. However, exporting logs at a price premium over processing them domestically at lower returns appears to be the preferred short-term survival option for many logging companies!

In terms of competing products in Japan, hemlock is competing against Japanese sugi as well as a variety of imported products including:

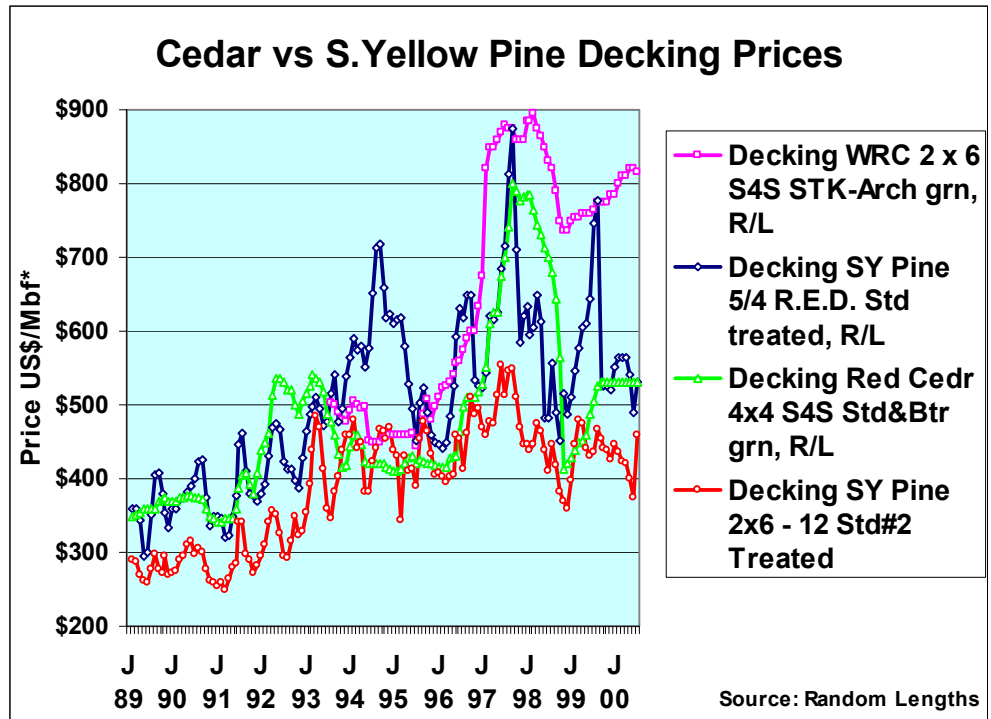
- SPF J-grade KD dimension;
- European spruce KD laminating stock
- Russian spruce and larch; and
- Radiata pine thin board.

While the main competing imported product is European spruce used in laminated posts and beams, more increasingly competition may be plantation-grown radiata pine from New Zealand and Chile. Since more radiata pine is being used in LVL as well as laminated lumber, it is quite possible that radiata pine lumber could be the benchmark item that hemlock prices are compared against in the future rather than SPF or European spruce over the next few years! As a result, the following price outlook shows how hemlock prices have moved lower in the late 1990s – away from European spruce lam stock and SPF and closer to radiata pine thin board levels.



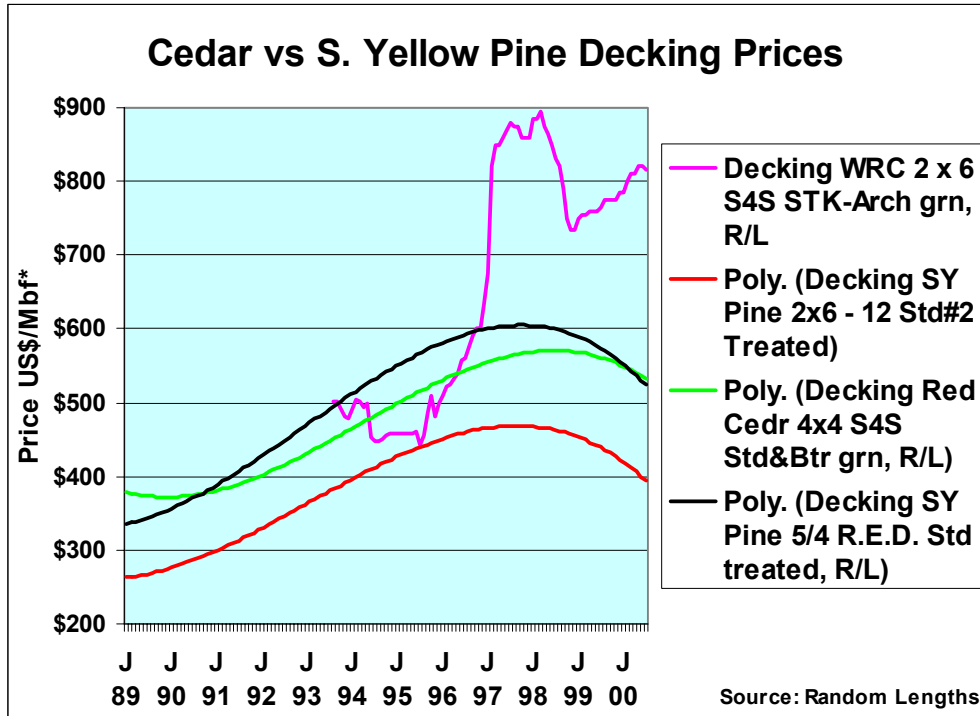
4.2 Cedar Historical Prices

In comparing specific products, such as the trend in cedar decking prices to treated southern yellow pine prices, it is evident that all prices peaked in 1997. Since then, decking prices have been trading at lower levels.



Note: See summary graph below for the overall price trends of each product.

While not completely evident in the brief analysis presented here, the smoothed line trends (below) indicate that cedar products sell for a premium to treated southern yellow pine lumber in the U.S. market. However, the restricted volume of cedar is one reason for this while the premium qualities of cedar represent other factors. As well, treated southern yellow pine is primarily a commodity that trades in similar way to SPF dimension.



Note: "Poly" refers to the poly-nominal line for each product, except for WRC 2x6 decking which is the actual prices from 1993 onward.

4.3 Hemlock Price Outlook

Hemlock Outlook:

Our Japan market outlook for green hemlock/balsam lumber calls for continuing weak prices due to the structural changes occurring that favour engineered and kiln dried lumber. Without access to the higher margin returns of the U.S. dimension market, the B.C. Coast industry will need to change its strategy and start manufacturing new products, kiln dried products and/or consider developing new markets. Essentially, the B.C. Coast industry will need to reassess customer needs to supply the market with what it wants (i.e., kiln-dried or engineered wood products) at prices that are competitive with the rest of the world. Maintaining a status quo production and marketing philosophy coupled with the industry's cost structure will not work anymore!

Without product changes, the increasing discount to sell green posts and beams to Japan in the face of declining demand will further reduce annual hemlock/balsam log and lumber production in coastal B.C., given today's high coastal logging cost structure. The increasing discount on lower timber harvest volumes will further reduce forest revenues for these species unless more hemlock/balsam and Douglas fir logs are exported at global market prices — something that is against current B.C. government policy.

We believe there are new product/market opportunities for hemlock/balsam as well as Douglas fir lumber. Innovative and efficient lumber manufacturing companies in B.C. will capitalize on these opportunities over the next few years. To support the required changes, it will be critical a suitable value be placed on hemlock/balsam sawlogs — one that recognizes current competitive issues in marketing, manufacturing and kiln drying. If the cost is too high, the species will continue to be considered uneconomical to harvest, and will be left in the forest. This will inhibit the development process necessary to create new (and possibly higher-cost) products. Coastal B.C.'s hemlock/balsam and Douglas fir forest resource has just gone through a period of devaluation. If new, competitive solutions/products are not developed, other countries with expanding forest resources are prepared - and perfectly willing and capable - to take B.C.'s Douglas fir and/or hemlock/balsam structural lumber export market share.

Assumptions in Hemlock Price Outlook

- Currency changes have not been accounted for;
- Japanese housing starts are expected to decline slightly;
- The Japanese Housing Assurance Program requiring ten year warranties will diminish demand for green products (including hemlock) but will increase demand for kiln dried and engineered (laminated) products.
- The supply side response of green hemlock lumber from coastal mills will be to take some scheduled downtime to reduce further downside on prices.
- The benchmark item selected for hemlock was the 4-1/8" baby square 13' (post);

Hemlock Price Outlook

The price forecast for green hemlock baby squares (13') is forecast to decline from 1999's average price of US\$602/Mbf (C&F Japan) to US\$553/Mbf in 2000, US\$490 in 2001 and US\$500 in 2002.

4.4 Cedar Price Outlook

Cedar Market Trends & Price Outlook

A cedar composite index was developed from three core products:

- ½ x 6 KD Clear Vertical Grain Bevel Siding: 15% weight;
- 2x6 Green Select Tight Knot “Architectural” Decking S4S: 50% weight;
- 4x4 Green Standard & Better S4S: 35% weight.

The market outlook for these three products varies:

- ½ x 6 KD Clear Vertical Grain bevel siding is expected to have slightly declining demand – a direct result of housing starts, trends in repair and remodeling, and increasing substitution from fiber cement and vinyl.
- 2x6 Green Select Tight Knot “Architectural” Decking is expected to follow the trend in 1/2x6 clear siding, as competing products and declining demand should slightly weaken prices.
- 4x4 Green Standard & Better is expected to fare better than the two other products due to some new market growth opportunities reported by some U.S. customers.

As a result, the overall trend of declining cedar prices (since the peak of 1997) is expected to continue generally.

Assumptions in Price Outlook

- Currency changes have not been accounted for;
- U.S. housing starts are expected to decline slightly – from 1.66 million in 1999 to 1.57 million in 2000 and 1.52 million in 2001;
- The supply side response of cedar lumber will be tied to trends in the coastal harvest of hemlock at coastal mills, where reduced harvests are expected in 2000 - related to scheduled hemlock mill downtime.
- The impact following the expiry of the Softwood Lumber Agreement in April, 2001 is not factored in. However, no major impact is expected since most cedar producers had substantial quota for their higher valued products. Increased shipments from remanufacturers and sawmills’ lower grade volumes are expected to increase, but the overall volume of products that make up the cedar composite index are not expected to change significantly.
- The benchmark items selected for the cedar index are outlined above.

Cedar Price Outlook

The outlook for the three cedar items is summarized in the table below.

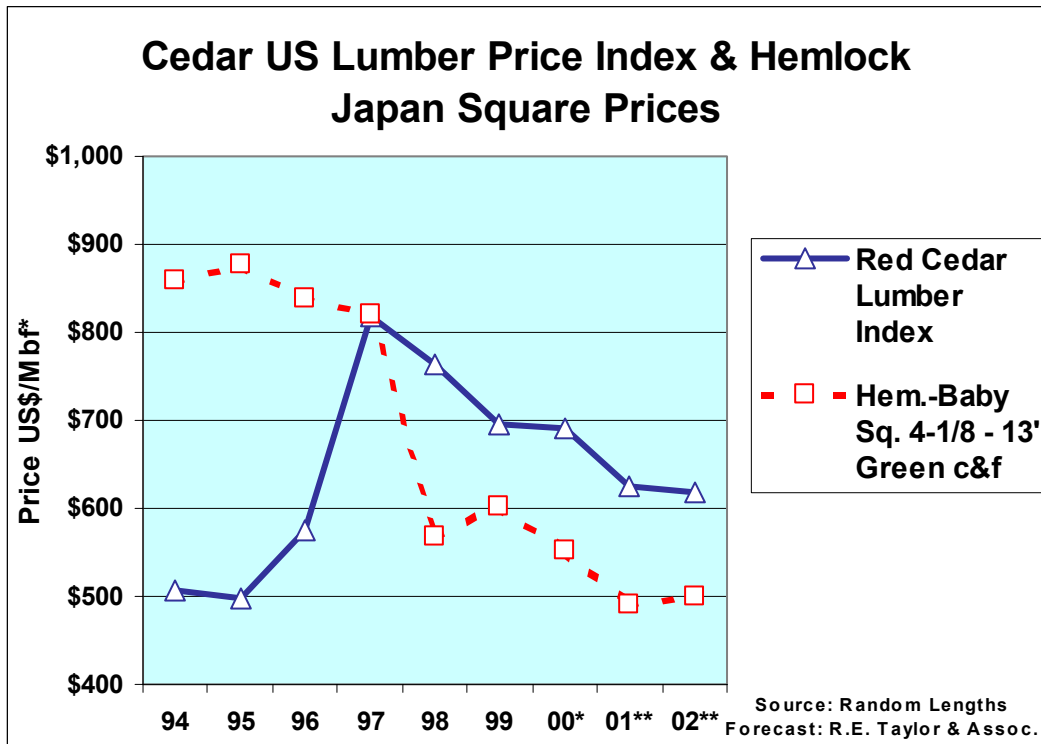
The cedar price index peaked at 817 in 1997 and has declined in 1998 to 763 and to 694 in 1999. For 2000, a further drop is expected to 690, where the second half decline is expected to be strong. For 2001 and 2002, further declines to 626 and 619, respectively, are forecast.

4.5 Summary of Hemlock & Cedar Historical Prices & Price Outlook

Price Histories & Outlook (US\$/Mbf)

	Red Cedar 2 x 6 S4S STK-Arch grn, R/L	SY Pine 5/4 R.E.D. Std treated, R/L	SY Pine 2x6 - 12 Std#2 Treated	Red Cedar 4x4 S4S Std&Btr grn, R/L	Red Cedar 1/2 x6 Clr VG Bvl KD	Red Cedar Lumber Index	Hem.-Baby Sq. 4-1/8 - 10' Green c&f Japan	Hem.-Baby Sq. 4-1/8 - 13' Green c&f Japan
94	469	622	441	427	820	507	1,085	858
95	473	513	422	420	767	499	1,036	877
96	576	552	446	472	807	574	936	838
97	862	670	497	705	929	817	890	821
98	815	536	420	632	896	763	571	568
99	769	596	448	497	906	694	618	602
00*	796	526	410	535	1,015	690	538	553
01**	765	510	400	550	980	626	480	490
02**	750	500	390	560	975	619	490	500
2000 Q1-2	813	543	419	530	1,030	746	570	586
2000 Q3-4	780	510	400	540	1,000	635	505	520

Note: * - Half Year Forecast; ** Full Year Forecast



5 APPENDIX:

SUMMARY OF CEDAR SIDING & DECKING PRODUCTS AS COMPARED TO ALTERNATIVES IN THE U.S. DISTRIBUTION CHANNEL

Relative Market Prices: April 1, 2000 SIDING PRODUCTS - Portland, Oregon	MILL Selling Price (US\$/Msf FOB Mill)	WHOLESALE Selling Price (US\$/Msf Portland)	RETAIL Selling Price (US\$/Msf Portland)	Retail MARK- UP (%)	Installed Coverage Cost (\$/Msf)
Vinyl 10" - 12' Horizontal Siding	349*	380	422	11%	454
7/16", 4x8' Hardboard Panel Siding	n/a	440	483	10%	520
Vinyl 10" - 12' Vertical Channel	425*	475	545	15%	586
7/16", 4x8', OSB Panel Siding	465*	560	623	11%	670
5/16"x8" - 12' Fiber-Cement Lap Siding	510*	575	679	18%	839
7/16"x8" - 16' OSB Lap Siding	560*	665	745	12%	926
19/32", 4x8', Douglas-fir Plywood Siding	590	660	812	23%	1,143
11/16"x8" KD STK Cedar Lap Siding¹	700	805	1,350	68%	1,895
1/2"x8" KD Clr Allheart VG Redwood Lap Siding ¹	1,125	1,245	1,992*	60%	2,796
1/2"x8" KD Clr VG Red Cedar Lap Siding¹	1,200	1,325	2,120*	60%	2,975

* Estimated

Source: International Wood Markets Research
Inc./WOOD Markets Newsletter

¹ Cedar and Redwood siding prices are on a surface measure count

DECKING PRODUCTS - US North-East							Retail vs. Mill	
Relative Market Prices: June 1, 2000							MARK-UP %	
Species	Size/Grade	Seasoning	FOB Mill	MILL Selling Price US\$/Mbf FOB Mill	WHOLESALE Selling Price US\$/Mbf US N.E.	RETAIL Selling Price US\$/Mbf US N.E.	RETAIL Selling Price US\$/Lin Ft. US N.E.	
Western Red Cedar:								
	5/4x6 Arch. Knotty	Green	BC/ US Northwest	1,000	1,185	1,664	1.04	66%
	2x6 Custom Knotty	Green	BC/ US Northwest	665	815	1,250	1.25	88%
	2x6 Arch. Knotty	Green	BC/ US Northwest	825	1,015	1,500	1.50	82%
	5/4x6 D&Better	Green	BC/ US Northwest	1,800	2,150	3,024	1.89	68%
	2x6 D&Better	Green	BC/ US Northwest	1,750	2,120	3,250	3.25	86%
Port Orford Cedar:								
	5/4x6 Premium Knotty	KD	Oregon	1,120	1,350	1,920	1.20	71%
Redwood								
	5/4x6 Con-Heart	KD or AD*	California	975	1,225	1,744	1.09	79%
	2x6 Con-Heart	KD or AD*	California	1,065	1,300	1,790	1.79	68%
Treated S. Yellow Pine:								
	5/4x6 Standard	Green	US South East	540	650	1,025	0.64	90%
	5/4x6 Premium	Green	US South East	875	1,050	1,488	0.93	70%
	2x6 #2 Structural	Green	US South East	400	500	725	0.73	81%
	2x6 #1&Better	Green	US South East	475	585	825	0.83	74%
Ipe (Imported Tropical Hardwood):								
	1x4 Clear	PAD**	Dock (Eastern US)	1,850	2,400	3,720	1.24	101%
	1x6 Clear	PAD**	Dock (Eastern US)	2,145	2,660	3,880	1.94	81%
Trex (Composite Wood/Plastic):								
	5/4x6	n/a	W. Virginia	1,325	1,575	2,432	1.52	84%
Crane (Plastic):								
	5/4x6	n/a	Pennsylvania	1,370	1,645	2,672	1.67	95%

Note: * AD - Air Dried

Source: WOOD Markets newsletter

** PAD - Partially air dried

