

Forest Products Production, Trade and State Jobs

By John Perez-Garcia

Location, timber resources, processing capital, port facilities and labor force all place the State of Washington in an ideal position to competitively access international and domestic markets. Its location allows the forest sector to ship products to Asia when Asian markets are strong and divert products to the domestic markets when Asian markets are weak. A healthy trade sector benefits the state of Washington through job creation and investment in forest management and processing capacity. In this short note we describe the labor sector associated with trade in forest products and how it has changed over the past 15 years in Washington. It appears as though the impact resulting from the trade of Washington's forest products on the region's economy will remain strong.

Overseas log exports during the 1980's averaged 3 billion board feet (bbf). This number encompasses 26% of the PNW coastal regions total harvest and 40% of the total private harvests. In 1988, the hey day for Washington's log exports, 57% of Washington's logs, or 4 bbf, were shipped offshore. Sixty percent

of total softwood log imports and one quarter of softwood logs consumed in Japan, Korea and China came from the PNW region, the vast majority from Washington. Every million board feet (mmbf) of timber harvested supported about 1.1 port jobs and 2.3 harvesting jobs (Perez-Garcia, Lippke and Baker 1997).

During the 1990's the log export market changed dramatically. A smaller volume of logs went overseas, yet their value increased dramatically. The price-sensitive markets of Korea and China were lost to lower cost log suppliers elsewhere or alternative materials. Additionally, Japan's imports of logs declined as the log value increased. However, the log export premium tripled and permitted continued investments in processing capacity and forest management in Washington as well as greater dividends to stockholders of these companies. The high prices Japanese customers were willing to pay for specific characteristics inherent in premium logs resulted in additional profit for corporate and other private landowners. The impact on the labor sector from the realization of export premiums is estimated

continued on page 3

2002 CINTRAFOR Conference on International Forest Products Markets

September 26th and 27th Mountaineers Club Seattle, Washington

This year's conference themes will include:

- Macro-economic overview:
- Financial Trends and timber values
- Economic outlook for Asian markets
- Overview of log, lumber, panel and chip markets
- Opportunities and obstacles in China and other emerging markets
- Regulatory reform and opportunities in Asian markets.

Please watch the CINTRAFOR website @ www.cintrafor.org for future detailed information.

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The Center for International Trade in Forest Products addresses opportunities and problems related to the international trade of wood and fiber products. Emphasizing forest economics and policy impacts, international marketing, technology developments, and value-added forest products, CINTRAFOR's work results in a variety of publications, professional gatherings, and consultations with public policymakers, industry representatives, and community members. Located in the Pacific Northwest, CINTRAFOR is administered through the College of Forest Resources at the University of Washington under the guidance of an Executive Board representing both large and small companies, agencies, and academics. It is supported by state, federal, and private grants. The Center's interdisciplinary research is carried out by university faculty and graduate students, internal staff, and through cooperative arrangements with professional groups and individuals.

CINTRAFOR News Editor:
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China WTO Membership: Potential Impacts on US Forest Product Exports

Before China formally became a member of the World Trade Organization on December 11, 2001 there had been much talk about the impact on trade of its WTO accession. Aside from the generally favorable market access opportunities afforded by improved transparency, elimination of industrial and domestic subsidies, embrace of science rather than politics for its phytosanitary customs laws and the adoption of impartial dispute settlement of trade-related issues, very little discussion has been focused on the impact of membership specifically related to forest products and building products. In sum, China's WTO commitment is to tariff-only import control. In principle, all non-tariff barriers to wood products will be dropped. Below is a quick summary of forest product impacts:

- *Tariff Reduction.* China will reduce its tariffs on wood and wood products from an average tariff of 10.6 percent to 3.8 percent. Reductions will be fully implemented by January 1, 2005.
- *Uniform Tariff Treatment.* U.S. exports will receive the same uniform tariff treatment as all other countries. Any preferential tariff rates applied under a free-trade area must also be applied to the US.
- *Uniform Tax Treatment.* Tax treatment of foreign invested firms will be the same as Chinese firms. National, provincial and local taxes will be levied uniformly.
- *Phase-out of Designated Trading Companies.* To date China has restricted both the number of companies and the types of goods that can be traded. Wood products were subject to further restrictions. After China's accession, the number of enterprises in China permitted to import and export wood products will be increased over a three-year transition period. At the end of this period, all companies in or outside of China will be able to import and export all

wood products. (See Department of Commerce website <http://www.mac.doc.gov/China/Docs/WTOAgreementSum.htm> for further description)

- *Open Distribution.* Prohibitions which restricted foreign companies from distributing products through wholesale and retail systems in China will be phased out over three years for wood and other products. (See FAS Beijing Timber Market Report dated December 2001; <http://www.fas.usda.gov/>)
- *Import procedures and inspections standardized.* China will unify its certification systems so that domestic and foreign products will be inspected according to the same standard.
- *Custom procedures will be unified* to combat regional protectionism. China agrees to significantly reduce paperwork, and therefore costs, for exporters and importers by not only simplifying customs and licensing procedures but by making them uniform throughout China as well.

Other recent developments to watch:

- *Building materials retail or big box impact?* A pre-WTO US/China agreement clarifies the requirement that foreign investors will only be allowed minority ownership of chain stores with more than 30 stores.
- *SEZ large influence on import/export trade may wane?* Under the WTO, Special Economic Zones such as Shenzhen will no longer receive regional specific considerations as they have in the past.
- *Increased social and labor mobility?* To absorb the millions of increased unemployed due to WTO membership and increased agricultural imports the Chinese government has announced that the Hukou household registration system will be changed. This will potentially cause a surge in the eastern urban population and spur an even larger demand for housing. †



at around 9.5 Washington jobs for every million dollars in profits diverted to investments, and another 11.2 Washington jobs for every million dollars distributed as dividends (Perez-Garcia, Lippke and Baker 1997).

The collapse of Japan’s economy has hurt oversea log exporters, reduced the log export premium for timber companies and impacted export-related jobs in Washington. Still we estimate that log exports generated about \$66 million in export premium-related profits as the premium level has returned to early 1990 levels. In addition, log-export related jobs at the Port of Tacoma, for example, contributed \$28 million in wages to port-industry workers and logging jobs related to log exports in 2000 (Port of Tacoma 2002). In 2000, it is estimated that every million board feet of timber harvested continued to support 1.3 port jobs and 2.0 harvesting jobs.

Washington also continues to export harvested logs to other states. In 1996, of total logs harvested, Washington sawmills consumed 56% of them and 44%, about 1.9 bbf, were exported, both overseas and to other US states (DNR Mill Surveys various years). Since overseas markets have declined to around 794 million board feet in 1999, and harvests in Washington are similar to those in 1996, it appears that a majority of logs not consumed by mills in Washington now go out of state. For example, lumber production in Oregon has increased from 5.3 bbf in 1996 to 6.1 bbf in 1999, while log harvests in Oregon have declined from 3.9 bbf to 3.5 bbf during the same period (Warren 2001).

As overseas log exports declined, the proportion of harvested timber processed in state has increased, resulting in sawmilling in Washington having more important implications for employment. As labor was released from the forest products sector due to

insufficient timber harvests, the employment number per unit of harvest increased as the transition to lower harvest levels has taken time. A result is that more jobs are concentrated in the lumber and milling sector today than over the past two decades.

Figure 1 charts the average number of jobs associated with 1 mmbf of timber harvest for two periods in eastern and western Washington in the lumber and sawmilling sector. More jobs per timber harvest are the result of a continued softness in the labor market for sawmill jobs. The displacement of workers from previously higher harvest levels is not complete.

During the 1990’s both timber harvest and log consumption declined. However, not proportionally. Timber harvests for example, fell from 7.0 billion to 4.3 bbf from 1988 to 1996, whereas sawmill log consumption fell from 3 bbf to 2.4 bbf (DNR Mill Surveys, various years). Figure 2 illustrates sawmill log consumption. Most of the contraction in the lumber and sawmilling sector has occurred among smaller mills. The fact that there was a smaller decline in sawmilling than the timber harvests is the result of a diversion of log exports to domestic processing as consumer preferences in Japan have changed and an unprecedented growth in US housing markets during the 1990’s.

In the face of lower timber harvests, Washington sawmills have seen an increase in labor productivity. The number of employees per mmbf of lumber has declined from 8.12 in 1988 to 7.38 in 1996. This rate is expected to have continued to improve over the past six years as well. The lumber-to-log output ratio has also improved from 1.46 to 1.72 from 1988 to 1996 (DNR Mill Survey, various years). All these factors suggest that even though productivity improvements has occurred, in part through increased log recovery efficiencies, there is still room for labor to continue to increase its productivity in the lumber and sawmilling sector in Washington.

With the decline in log exports, the potential for lumber exports will gain importance. This importance will continue to grow, as a greater proportion of the lumber produced in Washington is kiln-dried. In 1996 over 56% of the total production was kiln dried, compared to just 49% in 1988 (DNR Mill Survey, various years). Changes in the preferences of Japanese consumers and regulations regarding home quality almost guarantee that the majority of the lumber that is exported to Japan will be kiln-dried.

With weak Asian markets, lumber exports from Washington have not gained much market share. Servicing domestic markets has become more important, however. Both lumber production in Washington and Oregon have increased to over 10 bbf, while exports have declined from 1 bbf in 1996 to 438 mmbf in 1999. Washington mills are at a disadvantage in domestic markets because of their distance to these markets. So, while Asian markets

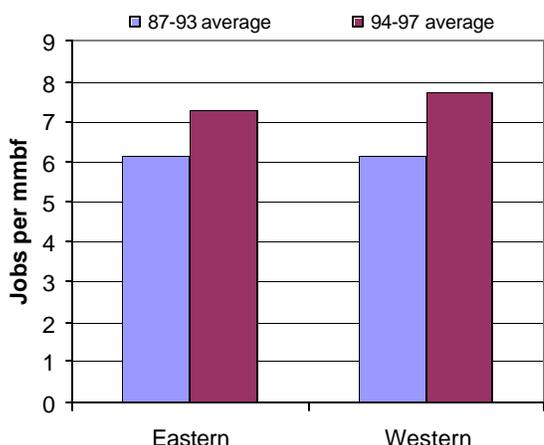


Figure 1. Number of jobs per mmbf harvest in Washington for the lumber and sawmilling sector. (Source: CINTRAFOR)

CINTRAFOR Participates in Program to Increase US Export to China

CINTRAFOR has formed a new partnership with some of the US's leading wood products associations to increase exports of US building materials to China. The China Market Development Project for US Building Materials, known as US-China Build, is the result of a 3-year grant from the Department of Commerce to the Evergreen Building Products Association (EBPA) to help U.S. firms capitalize on China's growing interest in international building methods and materials through promotional campaigns, trade missions, and trade show pavilions. The Program will also educate Chinese builders about wood frame technology through technical seminars, specification manuals, and a design award competition held in China.

With offices in Seattle and Shanghai, the US-China Build Program is the first industry-wide cooperation of its kind, bringing together the efforts of AF&PA, the American Hardwood Export Council, the Southern Pine Council, the Softwood Export Council, and APA-The Engineered Wood Association, with the State of Washington Office of Trade and Economic Development and EBPA. US-China Build activities will focus on creating market demand for US building materials in China in light of changes in China's housing policy, rising consumer incomes and the country's admission to the World Trade Organization (WTO). Simultaneously, US-China Build will focus on educating US exporters about the Chinese market and creating opportunities for companies to introduce their products and services to China. The cooperation between US-China Build's academic and industry-wide associations expands the program's reach as well as its ability to draw expertise from a variety of organizations with varying strengths and resources.

Research

To help inform US companies about China's construction market, CINTRAFOR is developing *The China Wood and Building Materials Market Sourcebook*. The Sourcebook will include information about China's economic outlook, imports of forest products and building materials, an overview of the housing and construction industry, suppliers and competitors in China's building materials and secondary wood products sectors, distribution, regulatory issues, business practices, legal framework, the impacts of China's entry to the WTO on the forest sector trade and

housing market, and general information and contacts.

Activities for US Firms

US-China Build also features ongoing seminars, trade missions,

and trade shows, and newsletters distributed in the US. In addition to the Doing Business in China seminar series, in which experts on China presented information on distribution systems, legal issues, and project management in China, US-China Build organizes trade missions to bring Chinese developers, architects, and builders to Seattle and Portland to visit wood-frame housing developments and meet US building products manufacturers. The next trade mission will be the Summer Gateway program, on August 19-20, 2002, which will include a trade show for US manufacturers and distributors. US-China Build's quarterly newsletter will contain information about China's housing market, policy and code changes, and program activities. The program website is also continually updated with news pertaining to China's construction industry.

Activities in China

China activities include a bi-annual Chinese language Housing and Building Products Newspaper containing articles about wood frame construction technology and US products, technical transfer seminars, and a directory of US suppliers. In October 2002, US-China Build will hold technical seminars in Beijing, Shanghai, Chengdu, Guangzhou, China on the basics techniques and components of wood frame homes. US suppliers will also participate in a trade mission that will accompany the technical seminar. The US-China Build program also has full time staff in China, supported by AF&PA, to promote North American building technologies and to facilitate business opportunities for US firms.

For more information on participating in the US-China Build program, please see the China Market Development Program Web site at <http://www.uschinabuild.org> or contact Rose Braden, China Project Manager, at (206) 543-0700.

Calendar of Events

<u>US Activities</u>	
April 2002	Focal Point: China Edition - #2 (quarterly newsletter on opportunities in the Chinese residential and light commercial construction markets)
April 6, 2002	Doing Business in China Workshop (Internet) (Small Business Enterprise Center, Seattle, WA)
June 2002	Focal Point: China Edition - #3
August 2002	Focal Point: China Edition - #4
Nov. 2002	Doing Business in China Workshop (Internet) (Small Business Enterprise Center, Seattle, WA)
<u>China Activities</u>	
April 2002	China Housing & Building Materials Newspaper Issue #1
August 2002	EBPA Window and Door Manual Published
August 2002	China Housing & Building Materials Newspaper Issue #2
Oct. 5-13 2002	EBPA Window and Door Technical Seminar



A Technical Evaluation of the Market for US Wood Windows Within the Japanese Post and Beam Construction Industry

By: Ivan Eastin, Joseph Roos and Paul Boardman

Wood windows are estimated to represent approximately 1.5% of the windows sold into the residential housing market in Japan, with 60% of them having been imported. Vinyl windows account for approximately 8.5% of the total window market with the remaining 90% being aluminum windows.

Prior to World War II, the majority of windows used in the post and beam construction were wooden, although the quality of these windows was quite poor. In particular, wooden windows were ineffective in providing protection against wind and rain. As a result, when aluminum windows were introduced into the market in the 1950's, they achieved rapid market success because of their effectiveness in providing protection against the elements. While the quality of wooden windows has improved dramatically in recent years, these quality improvements have been accompanied by significant increases in product prices. As a result, the price of a wooden window is approximately 3 times higher than a similar aluminum window.

The distribution channel used for Japanese wood windows is not particularly complex or extended, as is the case in other sectors of the Japanese economy. Window manufacturers generally sell their products to a national wholesaler who then sells to a regional wholesaler who provides windows to builders. However, large home builders often shorten the distribution chain by buying from national wholesalers or even from the manufacturer themselves. The wholesale markup within the distribution channel is approximately 40-50%. Tegata (credit) is often provided, usually covering 50% of the price, but prices are reduced approximately 3% to buyers willing to pay cash. Tegata is provided for a 90-120 day period, and because there is usually no interest on tegata, they amount to an interest free loan. This system often puts US windows at a competitive disadvantage relative to domestically produced windows.

The Japanese Building Code requires that wood windows used in fire zones and quasi-fire zones pass a 20 minute fire burn test. In the past, this requirement has not severely restricted builders use of wood windows in these areas: many contractors rely on the fact that building inspections are merely a formality. However, the newly implemented Quality Assurance Law and Building Inspection System could make it much harder for wood windows and exterior doors to be used in fire and quasi-fire areas and would function as an effective non-tariff barrier.

With regard to the specification and use of US wood windows in Japan, it has often been speculated that the use of metric sizes by window manufacturers and the use of a different construction module has restricted their competitiveness in Japan. In the US,

builders utilize a four foot by eight foot construction module, while Japanese builders use a three shoku by six shoku (approximately three foot by six foot) module that is based on the size of a traditional tatami mat. However, the actual size of the tatami differs depending on the region. For example, tatami in the Kansai region generally measure 1010mm by 1925mm while in the Kanto region they measure 910mm by 1820mm. A third system (referred to as **Chiho-ma**) is used in the countryside. In addition, rough opening sizes are called out according to three different measurement methods: center of post to center of post, outside edge to outside edge, and inside edge to inside edge. To further complicate things, wall posts in post and beam houses are several sizes (105mm, 120mm, 130mm, or 150mm). As a result, aluminum window manufacturers in Japan literally provide thousands of different sizes for the multitude of module variations that can occur.

	1993	1994	1995	1996	1997
Sliding	50.60%	50.60%	51.40%	51.60%	51.20%
Bay/Bow	9.70%	9.40%	9.30%	9.60%	9.80%
Japanese double	7.00%	6.20%	6.00%	5.50%	5.10%
Double	3.00%	3.00%	2.70%	2.00%	1.90%
Casement	n/a	n/a	n/a	n/a	9.70%
Awning	n/a	n/a	n/a	n/a	9.10%
Picture	n/a	n/a	n/a	n/a	6.00%
Double hung	n/a	n/a	n/a	n/a	4.60%
Other	29.80%	30.80%	30.50%	31.40%	2.60%

Table 1. Window types installed in new single family houses, 1993-1997. Source: Japan Sash Association, 1999.

To better explain the Japanese system, consider the following example. Assuming that the size of post being used is 105mm square, then the rough opening for a window located between adjacent posts is 805mm or 31.7 inches (910mm minus 2 times the width of a half post). Knowing this would theoretically allow a US window manufacturer to produce a line of windows that fit into the post and beam module. However, the situation is not as simple as it seems. First of all, the post and beam system uses different post sizes, primarily 105mm square, 120mm square, and 130mm square. In addition, most houses are not built using a single size post. For example, in a three story house the balloon posts (called **toshibashira**) are usually 130mm square while the infill posts located between them (called **kudabashira**) are frequently 105mm square. In addition, non-structural infill studs (called **mabashira**) are 27mm by 105 mm. This combination of different size posts leads to different size rough openings based on the size of post involved,



continued on page 6

“Windows” continued from page 4

complicating the calculation of rough opening sizes. Despite the different construction module employed in Japan, the use of metric sizes does not necessarily preclude the specification and use of US windows in post and beam construction.

However, despite the wide variety in window sizes, often times windows are not specified to fit the rough opening between posts. Rather, many windows are framed between the posts to accommodate the size of each window. Given this practice of in-fill framing for windows, it would be no more difficult for Japanese carpenters to frame in US standard size windows than Japanese metric size windows, a fact that our discussions with Japanese builders and carpenters confirmed. However, the different post sizes used in post and beam construction means that the thickness of the wall varies based on the size of post used. To address this complication, Japanese carpenters use

	Aluminum	Vinyl	Wood	Clad wood
Exterior of double slider	87.50%	2.70%	0.20%	9.60%
Interior of double slider	20.60%	19.70%	58.80%	0.90%
Bay/bow	92.00%	2.30%	0.10%	5.60%
Picture	79.30%	12.20%	0.20%	8.30%
Casement	50.10%	35.50%	0.00%	8.30%
Awning	99.70%	0.20%	0.00%	0.00%
Double hung	94.60%	1.70%	0.10%	3.60%
Corner	93.40%	0.00%	4.00%	2.60%
Roof	79.80%	1.30%	4.30%	14.50%

Table 2. Sash materials used for residential windows, 1997

Source: Japan Sash Association, 1999.

jamb extenders to frame out the window after the window has been installed in the rough opening. In addition, Japanese windows generally have a wider extension outwards from the nail fins to take into account the additional thickness of the dobuchai used in the rain screen siding system.

So what is limiting the specification and use of US wood windows in Japan? Certainly price is one factor. But beyond this, product design and the range of services offered are equally important factors. Japanese homeowners have a strong preference for casement windows and double slider windows (where both sashes move) that operate smoothly and require little force to move.

In contrast, US homeowners more often favor double hung windows or single slider windows with a stiffer movement that requires more force to move. While the Japanese preference for double slider windows does not pose a large problem to US window manufacturers, the Japanese preference for windows that operate smoothly and require a minimal amount of force to move is more problematic.

US windows are designed to provide protection against the elements while maintaining the thermal efficiency of the home. In order to accomplish these objectives, the seal around the sliding window sashes of a window fit tightly to minimize air infiltration and moisture penetration. However, providing an effective air and moisture seal in a window necessarily increases the amount of force required to get the window moving and to maintain that movement. Thus a trade-off exists between the weather tightness of a window and the force required to operate the window. Given the temperature extremes and strong winds and rains experienced in Japan, it would seem that a tighter, more thermally efficient window would be attractive.

Another factor that impacts the window specification decision relates to the fact that Japanese home builders are usually provided with a range of services by domestic window manufacturers and wholesalers that are often not available from US manufacturers and exporters. These services include extended credit, on-site product delivery, on-site installation crews, and locally available parts and replacement windows.

This research supports the idea that standard US wooden windows can be incorporated into the post and beam construction system used in Japan. However, product design and the range of support services offered by Japanese window manufacturers have a substantial impact on the competitiveness of US windows in Japan. US wooden window manufacturers (including clad wood windows) need to ensure that their windows are properly installed, finished, and maintained in order to ensure that the long-term performance of their windows meets Japanese expectations. Significant technical and installation issues exist and US manufacturers must take the initiative to develop training programs to effectively address these issues. †

“Jobs” continued from page 3

are down, the domestic markets gain more attention. However, when Asian markets rebound, it is important for Washington’s forest sector to be able to compete with international players. The potential for job growth through increased forest products trade is significant, and the impact from wage earners and increased profits on investments and consumption in the region are significant, be it through logs or lumber. †



Total Sawmill Log Consumption by Mill-Size Class

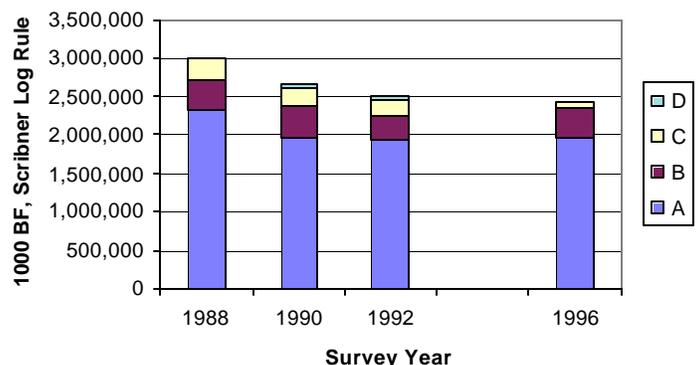


Figure 2. Total sawmill log consumption by mill size. (Source: WADNR)

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