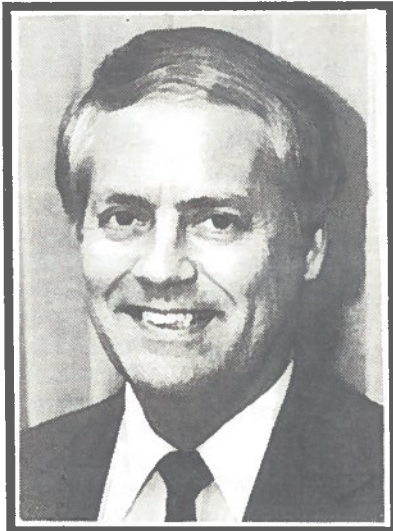




C I N T R A F O R

DEAN'S NOTES

I am pleased to announce that Mr. Bruce R. Lippke has accepted the Directorship of CINTRAFOR. Bruce also holds the position of Professor in the Division of Forest Resources Management, College of Forest Resources. His formal training includes a B.S. (University of Nebraska) and M.S. (New Mexico State) in Electrical Engineering, an M.S. in Operations Research (University of California, Berkeley), and graduate level work in Economics and Business (University of Washington). He has had more than 20 years of experience in both line and staff management in the private sector. His experience includes 4 years as President of Wharton Econometrics in



Philadelphia, a pioneer firm in economic modeling and policy analysis, and 12 years as Director of Marketing and Economic Research at Weyerhaeuser Company. He co-founded two economic/business outlook associations, the National Business Economic Issues

Council and the Northwest Business Issues Council. He also co-founded Applied Management Resources, a management consultant company.

Bruce has long been deeply involved in forest industry and related trade issues and opportunities and brings a wealth of experience to CINTRAFOR, as well as proven leadership and management capability. We are very pleased to have him on the CINTRAFOR and College team.

DIRECTOR'S NOTES

CINTRAFOR Mission, Goals for 1990, and Research Priorities

Emerging Issues

There is no shortage of issues facing the forest sector. Almost every newspaper features some aspect of the timber supply problem: old growth preservation, environmental litigation, or changing national forest management plans. Employment and income in our rural areas are threatened by mill shutdowns if Forest Service sales decline. Port activity could suffer if proposed log export constraints are enacted.

Although exports have increased rapidly through many years of efforts to open foreign markets, the pressure is high for further progress. Other policymakers call for increased value added manufacturing. Every potential solution to these issues generates environmental concerns. Business, government and consumers would prefer stability in this scenario, but the setting for the early 90's is one of increasing uncertainty.

Solutions to these problems will require new approaches, including objective evaluations of the past, education on both issues and alternatives, innovative research, and critical evaluations of new plans. The Center's mission is to contribute to these solutions with objective research, outreach public service, education, and information services.

These issues may seem almost overwhelming, but there has also been a trend of notable progress that rarely makes the press. Forest products production over the last three years has been at record levels, with export growth providing the major impetus. Consuming countries are ever more committed to opening their markets further. Product prices have remained more stable than in prior business cycles as the industry has successfully restructured to regain its competitiveness.

While this may sound like two different industries, one highly competitive and growing, the other in deep trouble, they are unfortunately both fairly accurate descriptions. The need for better research and public service to help resolve these issues has never been higher. CINTRAFOR has identified some common goals that will more effectively focus our efforts.

Goals for 1990 and beyond:

There is no beginning or end to this process of refining goals as it is critical that industry, government and others help to establish the priority agenda on an ongoing basis. But there are several clear threads emerging from recent reviews with our constituents.

1. With so many policy issues of increased importance, one goal must be to do a better job of integrating the available research into a broader scope view that will be more supportive of policy decisions.

2. A second goal should be to acknowledge the Center's charter as a service organization and to improve our service responsiveness.

3. A third goal should be to focus on areas where we can provide global expertise and have an impact. We have a growing base of prior projects in construction methods and opening foreign markets, in value adding processes, in global timber assessments and in higher yielding processes including better utilization and recycling. Each of these can contribute significantly to expanding our trade opportunities.

The high priority research list supportive of these goals should include:

1. Assess State of Washington timber supply and resources with policy alternatives for a range of timber management regimes, multiple-use and set-aside management regimes that can support our export opportunities.

2. Evaluate global competitiveness impacts on U.S. timber and the environment.

3. Incorporate meaningful assessments for other non economic uses of the forest to demonstrate competing and complementary environmental issues.

4. Characterize international construction markets, identify several of the highest potential opportunities and what it would take to open these key markets.

5. Characterize what it takes to succeed with secondary manufacturing, what the wood resource leverage is, what the labor contribution is, what the capital requirements are, what the market development problems are and what it takes to determine best site selection and whether policy can affect a more rural location.

6. Identify labor sensitivity for each sub-sector of forest products (input/output analyses) with exports differentiated as necessary to support employment stability analysis.

7. Examine renewable vs non-renewable resource comparisons (imported energy balance, environmental impacts) as a key to a healthier world with increased exports.

8. Characterize historic and potential future sources of yield and utilization improvements that can support export growth, singling out the most promising for thorough analysis and promotion.

Several contributing tactics to help us reach these goals will include

1. Focus the research more directly on the issues facing the forest sector.

2. Form cohesive topical advisory/work groups with industry government and other professionals in order to increase the technical dialogue and understanding of possible alternatives, research approaches and results.

3. Build on the success of our recent workshops on Europe '92, Japanese housing and Korean markets with a regular schedule of workshops every quarter.

The Second International Pulp and Paper Symposium (22-24 May in Seattle), our largest event, will provide a forum for thirty speakers from twelve countries to examine the dynamics and implications of globalization in the industry. For more information, please see page 7 of this letter or phone (206) 543-0867.

Refinement of these approaches will be ongoing, led by our own efforts to involve our supporters more directly in the focus and review of our research and contributing to our outreach activities.

Both the good news and the bad news is: there is so much to do.

ADDING VALUE TO FOREST PRODUCTS: WHO'S SUCCEEDING AND HOW

CINTRAFOR's efforts at better understanding how value can best be added by secondary wood processing in the state of Washington includes both the analysis of progress within the state as reported in our last newsletter and the analysis of some successes by other countries.

In recent years there has been a concerted effort in British Columbia for increased secondary manufacturing. Professors David Briggs and Paul Smith visited Vancouver, British Columbia, on 15/16 March to interview representatives of industry and Canadian National and Provincial governments to learn about activities to stimulate growth in value-added manufacturing. There are a number of programs available for financial aid as well as a new organization, the British Columbia Wood Specialties Group, intended to help secondary industries in international marketing. It is clear that British Columbia has identified value-added as a necessity for the future and is developing programs to create the climate to nurture these industries.

Increased attention in Washington State is growing more evident. On 22 March, Drs. Briggs and Smith participated in a workshop entitled "Building High Value Forest Communities," in Forks, Washington. This event was sponsored by the Governor's Timber Team and Washington's Departments of Natural Resources, Trade and Economic Development, and Community Development. Professor Briggs presented information from his CINTRAFOR study on secondary manufacturing industries and discussed how developing these industries, by relying on output from existing primary mills, could create new employment and economic opportunities without requiring new log supplies. Professor Smith's product and market development strategies for value-added firms and the changes in approach required in marketing products of these indus-

tries was compared to marketing commodities from primary producers.

Another success model selected for analysis was Finland. It was felt that, due to the comparable high percent of softwood species and a similarly strong export orientation, lessons with high pragmatic application for Washington forest products producers could be garnered through a Finnish perspective. Accordingly, Professor Paul Smith recently traveled to Finland and has provided this brief report.

ADDING VALUE TO FOREST PRODUCTS: THE VIEW FROM FINLAND

Summary

The forest products industry in Finland, the largest source of export revenue, is dominated by the pulp and paper sector. Over 80 percent of the industry's production is sold to foreign markets. The sawnwood and panel industries are experiencing increased international competition and an erosion of comparative advantage in traditional markets. The response to this trend has been to intensify product and market development activities in order to differentiate products and supply niche markets. Moreover, a greater degree of cooperation in both technology transfer and market intelligence among industry members is taking place to increase the proportion and degree of value added to these sectors. A proliferation of mergers has also strengthened the ability of firms to compete globally through improved financial resources, increased scale economies in research and development and marketing and the ability to take more risk over longer time frames in international environments.

General Industry Comparison (Finland vs. Washington State):

The land area of Finland is 338,000 square kilometers (130,000 square miles), of which 9 percent is water, 57 percent forest land, 8 percent cultivated and 26 percent classified as other.

The State of Washington, which is roughly half the size of Finland (66,560 square miles), has approximately 41 percent of its land area in commercial forests.

In Finland, 64 percent of the forested area and 71 percent of the growing stock is owned by the small private owner (mainly farmers), 24 percent of the area belongs to the government, 8 percent to timber companies and the balance, or 4 percent, to local authorities. By contrast, the small private owner in Washington owns 22 percent of the forest land, 27 percent is owned by timber companies, 30 percent by the Federal government and 21 percent by other local authorities (state, Indian and other).

Approximately 45 percent of Finnish growing stock is pine, 37 percent spruce, 15 percent birch and 3 percent aspen and alder (Figure 1). In Washington, Douglas fir represents about 36 percent of the growing stock, followed by western hemlock (23 percent), true fir (11 percent), pine (9 percent), spruce (2 percent), other softwoods (8 percent) and hardwoods (of which 71 percent is red alder) comprise the balance, or 11 percent (Figure 1). These numbers show a great similarity between the two geographic areas in terms of the ratio of softwood to hard-

wood forests. Finland is about 82 percent softwoods versus 89 percent softwood growing stock in the State of Washington.

In 1988, Finland exported approximately \$8.74 billion worth of all forest products produced of which the pulp and paper industry represented 81 percent, sawnwood 12 percent, and panels 7 percent (Figure 2). As an exporter of coniferous sawnwood, Finland is ranked fourth in the world behind Canada, Sweden and the Soviet Union. The State of Washington exported \$3.07 billion in 1988 consisting of the following: 33 percent pulp and paper, 45 percent logs, 15 percent sawnwood, 3 percent pulpwood and chips, 1 percent panel products and 3 percent other (Figure 2). Solid wood exports from Washington state represent over one-third of U.S. total solid wood exports; Washington also exports about one-eighth of the value of total U.S. pulp and paper exports. The importance of the forest to Finland is underscored by the fact that over 40 percent of the value of all Finnish exports in 1988 were by the forest industry and over 80 percent of all forest products produced were sold to export markets. These figures illustrate a sharp contrast in the relative importance of the pulp and paper industries of the respective locations. Log

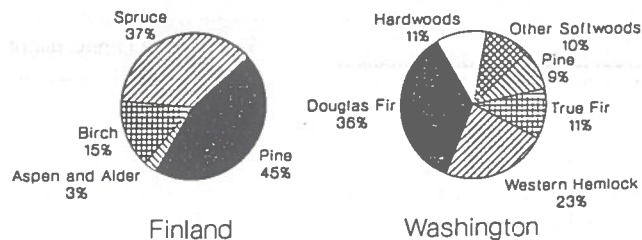


Figure 1. Wood species growing stock. (Finland = 1.658 billion cubic meters. Washington = 1.745 billion cubic meters)

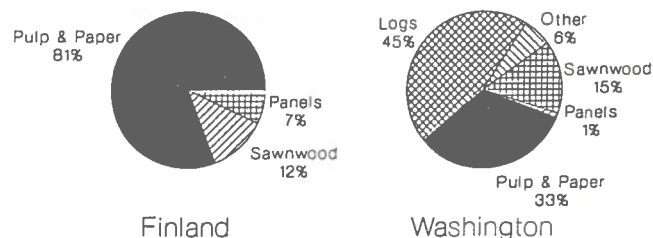


Figure 2. Forest product exports in 1988. (Finland = \$8.7 billion. Washington = \$3.1 billion)

exports, representing nearly half of the Washington industry export value, are not part of Finnish export strategies. In terms of the sawnwood and panel industries of Washington State and Finland, the percent of industry export value is quite similar at about 15 to 20 percent of the total.

Finnish Sawnwood and Panel Export Markets:

The sawmill industry in Finland is considered by many to be a "sunset" industry in which a shortage of both capital and talented people exists. Most of the growth in the Finnish forest products sector that occurred throughout the 1980's has taken place in the pulp and paper sector of the wood industry. Finland has recently withdrawn from low quality, commodity oriented international sawnwood markets where the low quality and high cost of roundwood grown on 80 to 100 year rotations, coupled with relatively high labor inputs has eroded their comparative advantage. The resultant restructuring has been cause for concern to paper manufacturers who have depended on the sawnwood and panel industries as a source of low cost raw material.

The sawnwood industry in Finland is now characterized by modern, technologically advanced mills providing high quality specialty and custom products to the marketplace through sophisticated distribution channels and with a high degree of service. Windows, doors, kitchen cabinets, roof trusses, laminated lumber, furniture and wood-framed housing materials are the major sawnwood applications. The panel industry in Finland includes 10 particle-board mills, 3 wallboard plants and 23 plywood mills which produce mainly birch plywood, combi-plywood (made from birch and spruce), various kinds of faced and steam pressed specialty plywood, blockboard and laminboard.

Finland exported over 88 percent of the value of its sawnwood exports to Europe, 8 percent to Africa and 4 percent to Asia in 1988. Key European sawnwood markets were, in order of importance, the U.K. (27 percent),

West Germany (15 percent), France (11 percent), Denmark (9 percent) and the Netherlands (8 percent). In terms of panel exports, 93 percent of the value was shipped to Europe that year with 3 percent to Asia and 4 percent to the U.S. and Canada. Major European panel markets were West Germany (21 percent), the U.K. (20 percent), Sweden (13 percent) and the Netherlands (7 percent).

In West Germany, 85 percent of the 13.2 million cubic meters of sawn timber consumed was of softwood. Of this total, 4.0 million cubic meters was imported; approximately 15 percent was pine or comparable redwood species and the balance was spruce or comparable whitewood species. Sweden supplied nearly one-third of West Germany's softwood imports, followed by Finland (14 percent) and the Soviet Union (14 percent). The most promising markets for Finnish sawn timber products appear to be windows, doors, furniture and building components (Juslin, Antti and Korhonen 1988). The Netherlands consumed about 3 million cubic meters of sawn timber in 1985, of which 72 percent was coniferous. Once again, Sweden represented the largest source of supply with a 23 percent market share followed by Finland at about 13 percent of the Netherlands softwood market. Interior doors and furniture represent the most attractive markets for Finnish sawn softwoods in the Netherlands (Juslin and Kajjala 1988).

The French market for sawn timber in 1985 was approximately 10 million cubic meters of which 70 percent consisted of softwood species. Imports represented about 1.5 million cubic meters, of which whitewood accounted for 80 percent and redwood 20 percent. Finland and Sweden each supplied approximately 27-28 percent of total sawn timber imports to France. Unlike Germany and the Netherlands, softwood furniture does not appear to be an attractive market for Finnish softwood products. However, window shutters and interior doors do exhibit promising growth possibilities (Juslin and Hedman 1988).

Mechanical Woodworking Technology:

The Finns are considered by many to have some of the world's leading technology for small-diameter sawnwood production. Finland has become synonymous with sophisticated woodworking machines which manufacture value-added products with high recovery and economy. The current trend is toward finished product machines which are sold through worldwide distribution channels with a variety of financing and technical service options. RWS-Engineering, Oy, (the parent company for Raute) for example, represents a leading Finnish firm consisting of consultant engineers which covers the harvesting and woodworking equipment fields. Wisa-Wood technology, developed by RWS, uses small diameter (3"-8") wood to manufacture a solid wood panel product.

The Finnish Furniture Industry:

Furniture represented about 17 percent of the production and 25 percent of the value added to the sawnwood and panel industries of Finland in 1987. Value added from the gross value was about 52 percent; a very lucrative application for wood products (Froblom 1989). Approximately 27 percent of Finnish furniture production was exported in 1987, down from 35 percent in 1980. In 1988, exports decreased 10 percent to about 741 million Finnmarks (Laukkanen 1988). In 1988, furniture imports represented about 83 percent of exports compared to 67 percent the previous year and 57 percent in 1986 (Laukkanen 1988). Thus indicating a weakening of Finnish furniture competitiveness abroad.

Chairs represented about 32 percent of the value of Finnish furniture production in 1985 followed by contract furniture (29 percent), tables (12 percent), shelves (10 percent), cabinets (7 percent), beds (6 percent) and other (4 percent) (Froblom 1989).

In 1988, the largest market for Finnish furniture was Sweden (37 percent) followed by France (16 percent) and

other EC countries (14 percent). The U.S. received 5 percent of Finland's furniture exports. The largest sources of furniture imports were Sweden (29 percent), Italy (16 percent), France (12 percent) and Denmark (11 percent) (Laukkanen 1988).

The major challenges to furniture exports remains the strong Finnish currency (the Finnmark) and the high costs in a labor intensive industry. The strengths of the Finnish furniture industry include world famous designs, high production technology and the close cooperation between furniture members of the Finnish Furniture Exporters' Association and other organizations such as the Association of Interior Designers, the Finnish Foreign Trade Association, The Association of Nordic Furniture Manufacturers' Council and the UEA (an association of 17 European furniture producing countries). Moreover, excellent internal communications among members, external promotional and trade show activities and high quality publications have aided Finland's international furniture activities.

Recently, Design Centers have been established throughout Finland to provide education for furniture people involved in management, product development and marketing. It is the belief of influential furniture designers in Finland that marketing and design function as a single entity. The tradition of architecture in Finland is very strong and many furniture manufacturers work in close cooperation with well known designers to develop "permanent collection pieces" which, of course, command high premiums.

Literature Cited

Froblom, Jorma. 1989. Finnish Furniture Industry and Possibilities to Adopt New Technology. Finland Technical Research Center report. 7 pp.

Juslin, Heikki and Jan Kajjala. 1988. Market for Coniferous Sawn Timber Components in Netherlands. Helsingin Yliopiston Puumarkkinatieteen Laitoksen Julkaisuja No. 7. 127 pp.

Juslin, Heikki, Sampo Antti and Pekka Korhonen. 1988. Market for Coniferous Sawn Timber Components in West Germany. Helsingin Yliopiston

Puumarkkinatieteen Laitoksen Julkaisuja No. 5. 158 pp.

Juslin, Heikki and Stig Hedman. 1988. Market for Coniferous Sawn Timber Components in France. Helsingin Yliopiston Puumarkkinatieteen Laitoksen Julkaisuja No. 6. 138 pp.

Laukkanen, Kari. 1988. The Finnish Furniture Exporters' Association Annual Report 1988. 40pp.

Components in France. Helsingin Yliopiston Puumarkkinatieteen Laitoksen Julkaisuja No. 6. 138 pp.

Laukkanen, Kari. The Finnish Furniture Exporters' Association Annual Report. 40 pp.

WORKSHOP BRIEF: EUROPE '92

Europe 1992: Forest Products Markets was the title and theme for the spring quarterly CINTRAFOR Seminar Series, co-sponsored by the Evergreen Partnership and IMPACT at Washington State University. The seminar, held on March 22, attracted over 50 participants from Washington, Oregon and British Columbia.

The seminar covered the general understanding and outlook of trade with the 12 European countries which make up the EC as seen by Mr. Zeger van Asch van Wijck, Executive Director of the Port of Seattle, and Mr. Guy vanhaeverbeke, Director of European Parliamentary Press and Information Services, Brussels, and Mr. Bruce Lippke, Director of CINTRAFOR. More specific forest products outlook and understanding was presented by Steve Lovett, Director of International NFPA, E. Norman Westerberg, Consulate of Finland, Ray Mitzner, American Plywood Association, Jay Johnson, CINTRAFOR, and Allen Struthers, President of the Pacific Lumber Exporters Association.

The U.S. forest products industry or their representatives have historically not been active on European committees setting standards, specifications and quotas for the EC countries. This is primarily due to restrictions placed on their participation by country representatives involved. In addition, since the Pacific Rim countries have been the most important for export of forest

products from the Pacific Northwest, information is not as abundant on the European markets, products and regulations.

Since wood frame construction is not prevalent throughout Europe, products will range from concrete forms to windows and doors, to interior products such as molding and trim and furniture. Currently the primary products being shipped to Europe from the U.S. are softwood lumber, plywood, hardwood lumber, veneer and hardwood logs.

Europe "without borders" will contain 325 million people striving for a single currency and the same quotas, building codes and standards for their products. It is still not known to what extent this will affect consumption of forest products; however, it is generally felt that the process is just beginning and will continue developing well into the 1990's.

Almost three-fourths of the seminar participants felt they would follow the leaders into this market, primarily through European distributors. Major obstacles to market entry were felt to be standards, codes, tariffs and specification differences. Market opportunities appear to be abundant, however, a better understanding of this market and how to bypass the obstacles for forest products is needed.

POST-TIANANMEN FORESTRY IN THE PRC: AN UPDATE

Note: The CINTRAFOR Newsletter for Summer 1989 (Vol. 4, No. 1) included a summary report on "Forest Products and the People's Republic of China" based on Working Paper 23 published in November 1989 under the same title. Dr. Thomas Waggener returned to China for 10 days in February-March 1990 and provides this update.

Revisiting the PRC in February-March 1990 reinforces the adage that China is both old and new. Forestry is no exception as was revealed in discussions in Beijing as spring sought to displace the grayness of winter.

The post-Tiananmen period has seen a continuation of the economic re-trenchment policies first implemented

in the last quarter of 1988. These slow-growth policies, aimed at slowing the pace of inflation and runaway spending on imports, have also continued to impact forest products trade. For all of 1989, U.S. forest product exports to the PRC were 920.1 million board feet compared with 1,119.2 MBF in 1988, a decline of 17.8 percent. On a value basis, log exports to the PRC from the U.S. dropped to \$174.2 million (down almost 60 percent). U.S. softwood lumber exports are much smaller, dropping from 5 million board feet in 1988 to only 700 thousand board feet in 1989.

Official Chinese statistics indicate that growth of GNP slowed to 3.9 percent in 1989, with industrial output up 8.3 percent. However, "overall excessive demand" was forecast for 1990, leading to renewed controls, including tighter credit. Inflation in December was at an annual rate (based on December 1988) of 17.8 percent, with foreign reserves at about US \$17.5 billion.

In this period of discouraging economic performance, the PRC has been reevaluating major aspects of the domestic forest policy. The Ministry of Forestry (MOF) has proclaimed 1990 as the "Year for Greening China," reflecting growing concern about the deterioration of forest inventories and lagging reforestation. This emphasis also reflects a growing concern for environmental deterioration associated with deforestation. The recently completed forest inventory conducted by the MOF indicated a growth of forest coverage to only 13 percent of the country's land base, up from 12 percent a decade ago and a disappointment in terms of highly visible claims for expanding the forest base over the past decade. Based on a minimum survival rate of 85 percent, only 65.6 percent of the artificial forest plantings in 1988 was considered successful.

New programs aimed at reducing losses from fire and insects are seen as a means for extending the supply of timber from declining mature forests. Problems of serious overcutting are being reviewed, with revised policy guide-

lines drafted for basing future harvests on sustainable projections of forest inventory rather than superimposed targets based on centrally-planned industrial consumption estimates. The problem of overcutting is most severe in the Northeast, where new policy directives will likely lead to reductions of 1/3 or more in planned harvests. Projections for four major forest enterprises in the Northeast are summarized in Table 1. The area of mature and overmature timber has been reduced from 21.9 million hectares to just 14.2 million hectares from 1984 to 1988. Reserves of timber are estimated as dropping from 6.94 billion M³ to 6.16 billion M³ with mature and overmature inventories declining to 2.6 billion M³ or by 1.22 billion M³ (31.3 percent). Of the remaining mature inventory, only 1.5 billion M³ is considered accessible for logging. For state-run forest industrial enterprises in the Northeast and Inner Mongolia, the decline has been over 50 percent.

Table 1. China's Timber Outlook—Changing "Planned" Harvests

Major Timber Bureaus	1987-90 Approved Ceiling	1989 State Plan	Adjusted Limit
Heilongjiang For. Engr. Bureau	14.47	10.60	8.40
Forest Company Greater Xing'an Mountains	5.78	6.00	4.41
Jilin Province	6.72	4.25	4.38
Nei Monggol	5.12	4.22	3.83
Total	32.09	26.07	21.02

Volumes in million cubic meters
Source: CINTRAFOR/MOF

Environmental concerns are also leading to a shift in resource management priorities, where wood production will likely become a secondary objective for much of the natural forest. Debates regarding intensive management, forest land use classification, multiple

use, and high yield plantations are surfacing within official policy reviews. Efforts are also underway to review and rationalize the structure of the wood processing sector, particularly the numerous small particleboard, panel, and paper mills established in the south in recent years, and to expand wood pulp production capacity tenfold to one million tons.

China's experts anticipate that the nation will need to continue the import of timber for some time. The level and type of product imported will depend significantly on the strength of international markets and prices. Officials state that China cannot "keep imports at levels of past years"—meaning the expenditure of scarce foreign exchange at recent levels for wood imports in competition with other national priorities. Efforts to "manage" demand through controls on the use of wood in construction will continue. However, estimated total wood consumption was 344 million M³ in 1989, up a full 50 million M³ from 1984. A "shortage" of 50 million M³ per year is forecast for the year 2000.

Current disruption of forest products trade is seen by the Chinese as "unfortunate" but a necessity under austerity guidelines imposed by the central government. Trade volumes for 1990 will likely be below those of 1989, perhaps by as much as 40 percent. Visitors are urged to "take a long perspective" and maintain relationships "with Chinese friends" and to look ahead to renewed expansion of the economy and trade.

APPLICANTS SOUGHT

Applicants are sought for two research assistant professor appointments in the College of Forest Resources, University of Washington, for the period 1 July 1990 through 30 June 1992, with possible extensions pending availability of funding.

1) Quantitative Analysis of Trade Policy Impacts

Lead efforts in CINTRAFOR to apply the IIASA Global Trade Model (GTM)

and the Timber Assessment Market Model (TAMM) as tools to analyze trade policy.

(i) Analyze alternative trade and domestic resource policies and their impact on regional and national economies. Projects include both short-term studies and analyses of longer duration involving original research.

(ii) Expand GTM and TAMM structures to project non-commodity resource-level impacts of alternative policy scenarios, including wildlife habitat and populations, hydrological effects and recreation activity.

2) Washington Timber Supply Analysis

Supervise an analysis of long-term timber supply prospects in Washington state, including reporting and organization of public seminars to review project results.

(i) Develop work plans and schedules, including decisions on key analytical methods; supervise project staff (one scientific programmer and two research assistants).

(ii) Develop appropriate harvest scheduling methods; cooperate with CIN-TRAFOR staff to develop methods to project non-commodity resource-level impacts of alternative harvest scenarios (see position 1).

Qualification (both positions)

(i) Doctorate in economics, forest economics, systems analysis or related field.

(ii) Experience in forest products industry analysis, modeling, international trade analysis (position 1); or timber supply analysis (position 2).

(iii) Familiarity with the GTM and TAMM models (position 1); with methods of timber harvest scheduling and growth and yield projection (position 2).

Term of Appointment: Beginning 1 July 1990 or as soon thereafter as possible, through June 1992.

Salary competitive, based on demonstrated experience. Appointment at research faculty rank, 12-month basis. Expectation of some teaching and guidance of graduate students.

Send letter of interest and resume with names of at least three references by May 15, 1990 to:

Professor Darius M. Adams
University of Washington
College of Forest Resources, AR-10
Seattle, WA 98195
(206) 685-0883

The University of Washington is an affirmative action, equal opportunity employer.

PUBLICATIONS

Our publication list has a new, streamlined look in order to save space for features. We will, of course, continue to distribute publications issued before 1989 as long as supplies last. (We regret to advise that Working Paper 2: *Evaluation of Japanese Softwood Construction Lumber Grading Systems...* (1984) and Working Paper 4: *Indonesia Forest Products Sector and Trade Profile* are now out of print)

New publications this quarter include:

Working Papers

Flexible Manufacturing Networks and the Washington Wood Products Industry, Paul Sommers and Timothy Leinbach

The Global Wooden Furniture Industry: An Emphasis on the Pacific Rim, Paul Smith and Hwan Ok Ma

Brazil: A Country Profile of the Forests & Forest Industries, Laura Cottle, Gerard Schreuder and Antoniode Baros

Reprints

Alaska Midgrade Logs: Supply and Off-shore Demand, Don Flora and Wendy McGinnis

Medium Density Fiberboard and Particleboard Markets in Taiwan and South Korea, Paul Smith

A Strategic Analysis of US/Taiwan Wood Furniture Trade, Paul Smith

OTHER ACTIVITIES

2nd International Symposium on Pulp and Paper

Global Resources and Markets: Issues and Trends

22-24 May 1990
Seattle, Washington

Globalization of the pulp and paper industry is an indisputable fact. Business leaders, policy makers, marketing strategists and technology managers more than ever require an international perspective for effective decision making.

The 1st symposium in 1987 drew enthusiastic response from participants representing 13 countries. Timeliness of topics and quality of the program for the 2nd symposium will be even more compelling. It is a unique opportunity to sharpen insights on issues and trends that will influence the pulp and paper business climate worldwide for some time to come.

Some of the topics that will be addressed are:

- Globalization of the Pulp and Paper and Supporting Industries
- Regional Trading Blocs
- Restructuring and Concentration of Corporations
- Unique Regional Perspectives on Issues and Trends
- Environment and Other Public Policy Issues
- Global Balance of Fiber Supply and Demand
- Non-Traditional Fiber Sources

For more information please contact:

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Working Papers

- WP18 *An Economic Analysis of Short Run Timber Supply Around the Globe*
 Cardelino, Peter A., Yeo C. Youn, Clark S. Brinkley, Jeffrey R. Vincent, and Danus M. Adams, 1988 \$6.50
- WP19 *Embargoes On and Off: Some Effects of Ending the Export Ban on Federal Logs and Halting Exports of State-Owned Logs*
 Flora, Donald F. and Wendy J. McGinnis, 1989 \$6.00
- WP20 *European Imports of West African Tropical Hardwood Forest Products*
 Easton, Ivan L., 1989 \$6.00
- WP21 *Potential Expansion of Soviet Far East Log Exports to the Pacific Rim*
 Cardelino, Peter A., Clark S. Brinkley, and Vadim K. Zausaev, 1989 \$7.00
- WP22 *A Preliminary Analysis of Timber and Timber Products Production, Consumption, Trade and Prices in the Pacific Rim Until 2000*
 Cardelino, Peter A., Yeo C. Youn, and Danus M. Adams, December 1989 \$7.00
- WP23 *Forest Products and the Peoples Republic of China*
 Waggener, Thomas R., December 1989 \$7.00
- WP24 *Flexible Manufacturing Networks and the Washington Wood Products Industry*
 Sommers, Paul and Timothy Leimbach, December 1989 \$7.00
- WP 25 *The Global Wooden Furniture Industry: An Emphasis on the Pacific Rim*
 Smith, Paul and Hwan Ok Ma, January, 1990 \$7.00
- WP26 *The Future of the Douglas fir Region Forest Economy: Potential Development Under Changing Public Policies and Private Resources*
 Adams, Danus M. and Richard W. Haynes, December 1989 \$7.50
- WP27 *Brazil: A Country Profile of the Forests and Forest Industries*
 Cottle, Laura E., Gerard F. Schreuder, and AAA de Barros, May, 1990 \$10.00

Reprints

- RE11 *Determinants of Log-to-Lumber Conversion Efficiency: A Washington Case Study*
 Cardelino, Peter A., 1989 \$3.00
- RE12 *Pacific Northwest Hardwoods in International Trade*
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