AN ANNOTATED BIBLIOGRAPHY TO VALUE-ADDED WOOD PRODUCTS RESEARCH

BY

Dr. David Cohen
Faculty of Forestry
University of
British columbia

G.M. Untereiner
Faculty of Forestry
University of
British Columbia

Dr. Bill Wilson
Industry and Trade
Pacific Forestry Centre
Canadian Forest Service

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British Columbia Wood Specialties Group, 1990. Japan '90 - Market Study. 20p, Vancouver, B.C.

General Overview:

This Japanese trip report represents an overview of the Japanese wood products market. It is based on interviews with agents, importers, manufacturers, government officials, and Council of Forest Industry (COFI) staff. In addition, visits were made to DIY stores and builders yards.

The scope of the report is limited to the structural and decorative uses of wood in housing and related markets. The report does an excellent job of analyzing the wood material needs of these markets. In doing so, the report outlines the opportunities and constraints facing B.C. manufacturers.

The appendices provide detailed information on the Japanese wood products manufacturing and distribution systems.

1.0. Japan

1.1. Country
1.2. Way of Life
1.3. Labour

2.0. The Lumber Market

2.1. Wood Use
- Japanese lumber grades are generally high for any given application.

2.2. Distribution
- The traditional lumber distribution chain includes agents, importers, wholesalers, manufacturers, and retailers.

3.0. Housing

3.1. General
- Japan has approx. 1.6 million housing starts annually

3.2. Manufacturing Styles
- Traditional
- 2x4 precut
- Prefabricated Housing
- Mansion Apartments
- Other

4.0. Opportunities for B.C. Species

4.1. Small Structural Components
4.2. Japanese Tatami Room Components
4.3. Western Room Components
4.4. Laminating Industry
- Structural Laminated Products
  - Non-Veneered
  - Veneered
  - Large Structural
- Non-Structural Laminated Products
  - Veneered Parts
  - Non-Veneered Parts

4.5. Rough Board Breakdown - Genban
4.6. Pressure Treating
4.7. Specialty Millwork
- Mouldings
- Doors
- Windows
- Spindles
- Panelling
- Flooring
- Staircase Parts
- Furniture
- Other (packaging materials)

5.0. Do It Yourself Market

6.0. Hokkaido Market - Largest island in Northern Japan.

7.0. Approach to the Market

7.1. Japanese Agents
7.2. Trading Houses
7.3. Local Sales/Shipping Agents
7.4. Major Companies with Japanese Offices
7.5. Japanese Companies with Local Buying Offices

8.0. Conclusions and Recommendations

9.0. Appendices

9.1. Precut Factories of Traditional Homes
9.2. Quality Assurance Precut Factories
9.3. Leading 2x4 Plants
9.4. Builders of Prefabricated Houses
9.5. Importers of Window and Door Fittings
9.6. Japan Flooring Industry Association Members
9.7. Millwork Importer's and Distributors
9.8. Japanese Trading Houses Local Offices
9.9. Contact Reports

Brunner, C.C., Butler, D.A., Maristany, A.G., VanLeeuwen, D. Optimal clear-area sawing patterns for furniture and millwork blanks. Forest Products Journal. 40(3):51-56, 1990.

The greatest potential for increased product yield occurs on the rough-mill cut-up line, where lumber is sawn to remove defects and to produce standard-sized pieces for further processing. Knowing the optimal sawing patterns for board clear areas is an important part of determining a suitable sawing pattern for an entire board. This paper briefly discusses various methods for finding these patterns, and presents a modified version of the Gilmore and Gomory algorithm, which is well suited to this task. These modifications permit the algorithm to execute within the speed and memory limits of a microcomputer. Also described is a method that decreases execution times by not calculating solutions for clear-area sizes that are seldom, if ever, required for complete-board solutions. Empirical results are presented to compare the performance of the modified version of the algorithm with the original implementation. Results illustrating the sensitivity of the algorithm to changes in the number of cutting bill elements, their sizes and values, and kerf width are also presented.

Cohen, David H. Adding value incrementally: a strategy to enhance solid wood exports to Japan. Forest Products Journal. 42(2):40-44, 1992.

Value-added manufacturing can take two forms. A distinct, secondary manufacturing facility can be established to produce a finished or semi-finished consumer product. Or, an existing primary producing facility can incrementally improve its own product thereby creating more value for the customer.

An example is given describing how the lumber exports from British Columbia to Japan have evolved and incrementally increased in value and volume from the 1960s to the present.

Cohen, D.H., Xie, C., Ruddick, J. Retailer perceptions of treated wood products in Vancouver, British Columbia. Forest Products Journal. 42(3):41-44, 1992.

This paper presents the findings of a Vancouver, British Columbia based retailer survey designed to determine what retailer's customers value most in treated wood products.

In general, the quality of treated wood products now supplied by the industry is unsatisfactory. It is believed that customers are willing to pay a premium for the visual upgrading of lumber products. Retailer's believe there is an opportunity for high quality, high priced, brand name treated wood products. As well, respondents expect demand for treated wood products to continue to increase in the future.

Deloitte, Haskins & Sells Associates, 1988. A Value Strategy for B.C. Solid Wood Products. Prepared for: Dept. of Regional Industrial Expansion and the Ministry of Economic Development, Canada - British Columbia Industrial Development Agreement. 222p, Vancouver, British Columbia.

General Overview:

This study examines the B.C. specialty wood products industry in terms of products manufactured, volume and value of production, regional distribution and product markets, and employment. It also analyses issues affecting industry development and profit potential.

The study emphasizes that the opportunities for growth in the British Columbia forest industry lie in the manufacture and marketing of more diverse and higher valued products further developed toward end use. For solid wood products, this means an industry commitment to a strategy of redirection from high volume, low cost manufacture of commodity lumber to one embracing an optimal economic balance between volume and value priorities.

The report is presented by major sections which are organized to describe:

A. The Methodology or Approach Taken;

B. The Overall Position of Solid Wood Manufacture within the Context of the World Forest Products Industry;

C. The Evolution of the Lumber Industry in B.C.;

D. The Specialty Products Process;
- Forestry and Logging Process:
  standing forest --> log product
- Primary Sawmill Practice:
  logs --> lumber
- Remanufacturing:
  lumber --> higher quality lumber
- Secondary Process:
  lumber --> finished product

In remanufacturing or specialty product manufacturing, five types of facilities have evolved:

1. Primary producers build there own remanufacturing facility.

2. Entrepreneurs develop their own markets, facilities, and obtain raw material from a primary producer or wholesaler.

3. Custom processors remanufacture the wood to the client's specifications. Usually operate for a primary cutter or wholesaler and concentrate solely on production.

4. "Scavenger" operations purchase low value products from a primary source and produce a higher value product, or a combination of products.

5. Customers build their own remanufacturing facility either separate or in conjunction with an established secondary or finishing facility.

E. The Factors Effecting Market and Marketing of Specialty Products;

1. Market Influences
   - With global trade, exchange rates are the factor having the greatest effect on world lumber trade.

2. Opportunities in Specialty Product Manufacture
   - Product and Species Market Opportunities.

3. Gaining Market Entry

4. Marketing Needs

F. The Assessment of the Industry to Include Opportunities and Constraints;

1. Government Policy Programs and Industry Infrastructure

2. Timber Inventory and Supply

3. Lumber Manufacture, Primary Process

4. Specialty Product Manufacture

5. Products and Markets

6. Technology, Research and Development

7. Marketing, Sales and Distribution

G. The Examination of Production Strategies and Alternatives;

1. The Key Issues - Commodity Product vs Specialty Product

2. Business Case Examples - the objective is to illustrate the effect of possible modifications of the established log cutting programs and operating philosophies common in many operations.

- Hypothetical mills for coastal hemlock, Interior SPF, lodgepole pine, and remanufacturing are demonstrated.

3. Hypothetical Provincial Implications of Applying Specialty Product Manufacture

    - An analysis is made of the potential measurement of the value to be extracted from the fibre of the forest resource in solid wood products in B.C.

H. Recommended Strategic Considerations for Growth and Development;

APPENDICES

1. Glossary of Terms

2. Reference Material

3. Industry Questionnaire

4. Industry Statistics

5. Canadian Rail Price List - 1940

6-1. Directory of Remanufacturers

6-2. Listing of Primary Producers

7. A Paper Presented to the Portland Sawmill Clinic on "The European Experience"

8. Species Description

9. Lumber Types and Grades

10. Business Case Analyses
    Case A - Coastal Hemlock Mill
    Case B - Interior SPF Mill
    Case C - Interior Lodgepole Pine Mill

11. Overview of Financial Assistance Programs

Dirks, J.M., Briggs, D.G., 1991. Wood Products in Washington State: The Secondary Manufacturing Industries. Center for International Trade in Forest Products (CINTRAFOR) - Working Paper 30, University of Washington - College of Forest Resources. 103p, Seattle, WA.

General Overview:

This report provides a descriptive account of the secondary wood products manufacturing industries in Washington State. The study focuses upon six major product groupings - engineered building components, millwork, remanufactured lumber products, pallets, cabinets, and furniture - based upon the number and types of firms responding to the survey questionnaire used.

The study identifies existing secondary wood products manufacturers in the state of Washington and stratifies companies by product(s) manufactured, firm size and location. It also analyzes each industry group's dependency on wood raw materials produced from Northwestern US tree species.

Production variables (raw materials, employment and manufacturing technologies), and marketing variables (product promotion and distribution) influencing the industry are examined. As well, current target markets are identified and the extent of the industry's involvement in international trade is measured.

4.0. Research Methodology

4.1. Sampling Frame Development
4.2. Sample Design
4.3. Questionnaire Development
4.4. Mailing Procedure
4.5. Data Analysis and Interpretation
4.6. Survey Response
- Non-Response Bias

5.0. Secondary Wood Products Literature

5.1. Value Added Strategies
5.2. Wood Products in Washington

6.0. Washington Secondary Industries Profile

6.1. Location and Employment
6.2. Industry Segments
- Secondary manufacturers by county.
- Secondary wood products company size.
- Number of firms in the logging industry.
- Primary wood product industries.
- Wood industries gross business income.

6.3. Survey Respondents
- Position (or Title) of Respondent
- Business Type
- Legal Structure
- Year Established
- Annual Sales
- Operating Costs
- Employment and Union Membership

7.0. Manufacturing Profile

7.1. End Products
7.2. Wood Raw Materials
- Source of Supply
- Wood Purchases
- Material Types and Species

7.3. Manufacturing Technology
- Equipment and Processing Technologies
- Equipment Purchases
- Technological Change
- Factors Limiting Investment

Dirks, J.M., Briggs, D.G., 1991. The Secondary Wood Products Industry of Washington State: An Industry Profile. College of Forest Resources - University of Washington, Seattle, Washington.

This paper contains the presentation based on the study:

Dirks, J.M., Briggs, D.G., 1991. Wood Products in Washington State: The Secondary Manufacturing Industries. Center for International Trade in Forest Products (CINTRAFOR) - Working Paper 30, University of Washington - College of Forest Resources. 103p, Seattle, WA.

The paper contains the presentation overview and the overhead transparencies used. Topics covered were:

- Employment in Solid Wood Industries.
- Wood Industries Gross Business Income.
- Secondary Manufacturers in Washington.
- Questionnaire Survey Respondents.
- Secondary Wood Products Company Size.
- Gross Sales in 1988.
- Origin of Wood Used in Manufacture.
- Wood Raw Materials - Used by Secondary Manufacturers.
- Wood Raw Materials - From Whom Wood Purchased.
- Secondary Wood Products - Exports to Japan From Washington State.
- Washington State Wood Products Exports.
- Factors Limiting Manufacturers.
- Top Problems Facing the Firm.
- Product Promotion Methods.
- Sales and Distribution.
- Principal Domestic Markets.
- Perception of Opportunity to Pursue New Markets with Current Products.

Wood Markets: Alternatives to Residential Construction.
Proceedings, Forest Products Research Society (FPRS) Conference.
Portland, Oregon, November 18-20, 1985. 105p.

PRESENTATIONS:

Keynote: Alternatives to Residential Construction.
Bruce E. Lyons
Vice President and General Manager, American Plywood Association, Tacoma, Washington.

SESSION I:
NONRESIDENTIAL CONSTRUCTION MARKETS FOR WOOD - ARE THEY REAL?

Weyerhaeuser's Commitment to Nonresidential Construction Markets.
Mark R. Lembersky
Division General Manager, Engineered Products.

- Analyzes the pluses & minuses facing the industry if it hopes to successfully penetrate this market.
- Weyerhaeuser's strategy is to focus on nonresidential construction through their newly formed "Engineered Products Division".
- Penetrating this market requires taking on a different product orientation and a different marketing orientation.

A Profile of Wood Use in Nonresidential Building Construction.
Robert G. Anderson
Director, Market Research & Economic Services,
American Plywood Association, Tacoma, WA.

- Presents the results of a study designed to cover nonresidential building construction only (new buildings and additions to buildings of at least $100,000 in cost).
- Emphasis of the study is on how the information can be used by manufacturers to select market targets.
- Topics discussed include: the Market, Use by Building Type, Use by Application, Building Size, Wood Use by Region, Low Rise & High Rise Application, Competition.

SESSION II:
TECHNICAL CONSIDERATIONS IN MARKET DEVELOPMENT

Education of Engineers on Structural Use of Wood.
Russell C. Moody
Research Engineer, Forest Products Laboratory
Madison, WI.
Alan D. Freas
Consultant, Madison, WI.

- Examines the present education situation and the role that different organizations play in the education of engineers regarding timber design.
- Areas investigated include:
  - Universities - Undergraduate, Graduate, Continuing Education, Resource Material.
  - Industry
  - Other Groups - Technical Schools, Professional Societies, Government Organizations.

Design Considerations.
James R. Goodman
Professor of Civil Engineering, Colorado State University.
President of Engineering Data Management, Inc.
Fort Collins, Colorado.

- Information on the influence of design considerations on the utilization of wood in nonresidential structures is presented. The paper addresses the differences in material needs and design philosophies for these engineered wood structures.
- Topics discussed include:
  - Design Methodology: Allowable stress design concepts, Load factor and strength design concepts.
  - Reliability-Based Design.
  - Implications of Reliability-Based Design in Optimizing Use of Wood in Structural Systems.
  - Recognition of the Special Behavior of Timber Structure Systems.

Product Performance and Quality Assurance.
William L. Galligan
Technical Director, Frank Lumber Company.
Michael R. O'Halloran
Manager, Research & Development, American Plywood Association.

- Heritage of Performance: - Wood use by early settlers.
  - The Transition: - From the decline of the artisan-based quality to the increasingly formal recognition of engineering principles such as reliability-based design.

  - The Next Step: - Development of performance standards.

- Current Quality Assurance Practice - A Transition Zone
  - Timber: Solid Sawn Lumber, Structural Composite Lumber.
  - Structural Panels.
  - Assemblies: Laminated Beams, Metal-Plate Trusses, I-Joists.

SESSION III:
INNOVATIVE MARKETING -- THE KEY TO NONRESIDENTIAL CONSTRUCTION MARKETS

The Importance of Customer Service.
William R. Walters
President, TMI Structural Systems, Inc.
Tualatin, Oregon.

- The service requirements of the nonresidential construction industry are outlined and examples are given of industry success and failure.

International Market Opportunities as an Alternative to Residential Construction.
Leonard M. Guss
President, Leonard Guss Associates, Inc.
Tacoma, Washington.

- Figures are used to show the declining trend in U.S. exports of softwood lumber and plywood.
- Topics discussed include: U.S. domestic industry, Competition, Economic conditions, Changes in demand due to changing building practices, Attitudes of U.S. suppliers.

SESSION IV:
NEW AND EXISTING PRODUCTS AND THEIR APPLICATION IN NONRESIDENTIAL CONSTRUCTION

Wood I-Beam Applications in Nonresidential Construction.
Larry A. Beineke
Manager of Manufacturing & Engineering
Alpine Structures, Inc.
Oxford, North Carolina.

- Introduction includes information on the principles behind wooden I-beam construction, benefits compared to alternative products, manufacturers involved in the industry, and the designs and sizes available.
- The "Applications" section gives several examples of wooden I-beams in use in nonresidential buildings, with pictures.

Panelized Roof System.
Don Norell
Manager Field Operations
Beven-Herron, Inc.
La Mirada, California.

- Outlines the history of Beven-Herron, Inc. and the development of the panelized roof system.

SESSION V:
CURRENT AND FUTURE ACTIVITIES IN MARKET DEVELOPMENT

Wood Products Promotion Council Activities.
Robert G. Anderson
Director, Market Research & Economic Services
American Plywood Association
Tacoma, Washington

- Outlines the steps the WPPC has taken in targeting regional markets with educational programs. The example discussed is the first target market, Texas.

Research Needs to Penetrate Non-Residential Construction Markets.
Albert T. Schuler
Manager, Economics Dept., Forintek Canada Corp., Ottawa, Ontario
J. David Barrett
Head, Faculty of Forestry, Dept. of Harvesting and Wood Science, University of British Columbia, Vancouver, B.C.
Erol Varoglu
Research Scientist, Wood Engineering Dept., Forintek Canada Corp., Vancouver, B.C.

- The objective of this paper is to discuss the essentials of some structural changes facing the Canadian solid wood products industry, and how we can effectively deal with these changes. The second half of the paper deals with the marketing aspects and engineering-related research needs.
- Structural Change: Market Shifts, Raw Material Supply.
- Substitution by Non-Wood Materials
- Solutions
- Engineering-Related Research
- Structural Research Needs: Materials and Fastener Performance Data, System Analysis Programs, Serviceability and Strength Criteria, Load Models, Reliability Assessment Procedures, Code Development, Product Implications Assessment.

Nilsson, S., 1985. An Analysis of the British Columbia Forest Sector Around the Year 2000 - Volume I. Forest Economics and Policy Analysis Project - Information Report 85-1. 184p, Vancouver, B.C.

General Overview:

This report presents the results of a long-term economic analysis of the British Columbia forest sector. It discusses the possible state of the forest industry in the year 2000 based on projections made by various forecasting institutes and individuals and on analyses produced by a mathematical programming forest sector model. The harvesting and production levels, amounts of investment in new capacity and amounts of economically obsolete capacity for alternative scenarios are reported on a regional basis for the various subsectors - pulp, paper, lumber and panels. The report also discusses some of the problems facing the industry, and presents some strategies for addressing them. The data used in the base case scenario, published in Volume II, are summarized here in Volume I.

The gloomy outlook indicated by the forest sector model in the base case scenario need not occur if the industry begins now to improve the economic conditions of the forest sector through intensified investments in new technology to improve recovery and productivity, through production of more higher value-added products and through a stronger market orientation.

Nilsson, S., 1985. An Analysis of the British Columbia Forest Sector Around the Year 2000 - Volume II: Data used in the baseline analysis. Forest Economics and Policy Analysis Project - Information Report 85-2. 111p, Vancouver, B.C.

General Overview:

This report presents the results of a long-term economic analysis of the British Columbia forest sector. It discusses the possible state of the forest industry in the year 2000 based on projections made by various forecasting institutes and individuals and on analyses produced by a mathematical programming forest sector model. The harvesting and production levels, amounts of investment in new capacity and amounts of economically obsolete capacity for alternative scenarios are reported on a regional basis for the various subsectors - pulp, paper, lumber and panels. The report also discusses some of the problems facing the industry, and presents some strategies for addressing them. The data used in the base case scenario, published in Volume II, are summarized here in Volume I.

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The Nature of TRADA and Its Efforts to Promote the Use of Timber in Nonresidential Construction.

C.J. Gill
Deputy Director, Research and Development
Timber Research and Development Association
High Wycombe, Buckinghamshire, England

- Provides an overview of the United Kingdom's structural wood products building industry. Its focus is on TRADA and the work presently underway.
- TRADA's Nature and Method of Operation
- The United Kingdom Context
- Recent Events Impacting on Timber
- Defensive and Offensive Actions

Current and Future Activities in Market Development.

James T. Knight
President, National Frame Builders Association, Inc.
Chicago, Illinois.

- Outlines the history and the future focus of the NFBA. It emphasizes the importance of education and how the NFBA is trying to meet the needs of industry professionals.

Developing New Approaches to Marketing Our Wood Products.

Edward R. Siedlak
Executive Vice President, Canadian Wood Council
Ottawa, Canada

- This paper presents an example of the Canadian Wood Council's efforts to promote nonresidential construction though a design competition for the Council's proposed headquarters.
- Outlines what is required to increase markets in the field of commercial, industrial, and farm buildings. As well, the possibilities of developing markets for low-cost shelter in less-developed countries are mentioned.

Henley International, 1990. Report on a Study of European Market Opportunities for Ontario Lumber Products. Submitted to: The Industrial Restructuring Commissioner, The Ministry of Natural Resources, Forestry Canada (Canada-Ontario Forest Resources Development Agreement). 52p. Ontario, Canada.

General Overview:

This study was undertaken to examine the prospects for diversifying the export horizon for Ontario softwood lumber sales into selected European markets.

The report begins with an overview of the major features of the European market for softwood lumber. This summary is followed by a detailed review of the country markets identified as being of particular interest to Ontario producers. The discussion then proceeds to the qualitative assessment of the species, product and specification aspects of these markets, and to some elements and determinants involved in a market diversification strategy for the province's softwood lumber industry. The analysis concludes with observations on the viability of such a strategy, and the prerequisites to its successful implementation on behalf of Ontario mills.

Home Improvement Research Center, A Division of Vance Publishing Corporation, 1991. HOME IMPROVEMENT CENTER Magazine's - PRODUCTS '90 - Summary Report. 57p. Lincolnshire, IL. Available for a fee from Home Improvement Research Center.

General Overview:

Products '90 is Home Improvement Center Magazine's latest market study on the home improvement retail environment. The Summary Report contains summarized statistics for all home improvement retailers combined and separately for home centers, hardware stores and lumberyards. It provides an overview of market composition, activities and trends. Survey topics include: Operations, Operating Statistics, Sales, Sales Space/Inventory, Purchasing, Marketing, Products Sold (Stock/Sell Data).

Based on responses from approximately 1,600 firms, this comprehensive survey provides an excellent overview of the industry composition.

Industry, Science and Technology Canada (ISTC), 1990-91. Industry Profile - Value-Added Wood Products. 12p, Ottawa, Ontario. Available in English and French.

General Overview:

This Industry Profile is one of a series of papers in which ISTC assesses, in a summary form, the current competitiveness of Canada's industrial sectors, taking into account technological, human resources and other critical factors.

This particular profile examines the value-added wood products sector of the Canadian forest products industry. Throughout the paper statistics and general information are given regarding the past performances, and the future opportunities and constraints facing this sector of the industry.

Topics Discussed Include:

Present Industry Structure

Industry Performance

Industry Strengths and Weaknesses

- Structural Factors
- Trade-Related Factors
- Technological Adoption Factors
- Other Factors

Evolving Environment

Competitive Assessment

Includes Tables Showing:

- Principal Statistics
- Trade Statistics
- Sources of Imports
- Destinations of Exports
- Regional Distribution
- Major Firms in the Value-Added Wood Products Sector
- Industry Associations
- Sectoral Studies and Initiatives available from ISTC

K.F. International, Tokyo, in collaboration with Saican Consultants Inc., Montreal, 1990. Export Opportunities in Japan for Canadian Companies - The Market for Millwork Products. Prepared for: Canadian Embassy Tokyo, External Affairs and International Trade Canada, Ottawa. 50p.

General Overview:

This report covers wooden flooring, staircases, panelling, and moulding products. The objectives are to provide Canadian millwork manufacturers with a basis on which to decide whether to invest the time required to develop business in Japan and to then plan how to approach the market.

Each topic in this analysis is succinctly and effectively discussed. The markets (potential and established), product standards, business standards, and market penetration techniques are all evaluated and explained in a detailed and useful manner.

1.0. INTRODUCTION

1.1. Lumber Imports
- Imports of Lumber Demanded
- Millwork Products

1.2. Factors that Affect Demand
- Laminates
- After Sales Service
- Awareness about Hardwood Products
- Product Uniformity

1.3. Residential Construction Activity
- Overall Trends
- Wooden Houses
- Prefabricated and 2 x 4 Housing
- Renovation Market

1.4. Non-Residential Construction

2.0. FLOORING MARKET

2.1. Overview of the Market
- Classification System
- Typical Sizes
- Production and Shipments
- Uptake by Market Sector
- Residential Flooring Materials
- Criteria for Choice

2.2. Trends in Supply
- Historical Perspective
- Profile of Flooring Manufacturers

2.3. Imports
- General Import Trends
- Imports by Country

2.4. Trends in Demand
- Historical Perspective
- Quality Requirements
- Best Selling Products

2.5. Standards
- Japan Agricultural Standard (JAS) is Applicable
- Standard Sizes
- Water Content
- Tolerances

3.0. STAIRCASES, PANELLING AND MOULDING

3.1. Staircases
- Overview of the Market
- Trends in Supply
- Imports
- Trends in Demand
- Standards and Regulations

3.2. Panelling
- Overview of the Market
- Trends in Supply
- Imports
- Standards and Regulations

3.3. Moulding
- Overview of the Market
- Trends in Supply
- Imports
- Demand Trends

4.0. BUSINESS PRACTICES

4.1. Purchasing Criteria
- Availability and Price are Key
- Total Interior Coordination

4.2. Distribution Channels
- Several Options are Available
- Most Companies use a Number of Channels
- Direct Distribution in Building Trade
- Distribution of Leading U.S. Products
- Leading Importers
- Leading 2 x 4 Contractors

Peter Louch & Associates, 1986. Market Trends, Opportunities and Constraints for Knock-Down (Ready-to-Assemble) Furniture in the United States. Prepared for the Department of External Affairs - Ottawa, Canada. 134p, Westport, CT.

General Overview:

The primary objective of this study is to evaluate US national and specific regional markets for a variety of knock-down (KD) / ready-to-assemble (RTA) furniture product categories including bedroom furniture, dining room furniture, and living room furniture, concentrating on those specific products which are suitable for production in knock-down form. Products assessed for these markets could be made of wood, wood substitutes, metals, plastics, upholstery, or a combination of these materials. The specific regional areas covered include New York, Chicago, Florida, Texas, and California.

The study provides background information on consumer preferences and buying habits and estimates future distribution, design and price trends in the industry.

The report examines distribution alternatives and distributor's requirements. In doing so, it provides useful information on tariffs, transportation costs, pricing structures, federal or state regulations and any other matters affecting the ultimate saleability of Canadian knock-down furniture in the US.

It also evaluates the level of product preparation, sales promotion, and marketing support required to launch products effectively in the US market. As well, the report provides constructive market strategies designed specifically to assist small and medium sized Canadian manufacturers to sell successfully in US markets.

1.0. INTRODUCTION

2.0. THE MARKET FOR KD FURNITURE IN THE US

- 2.1. The US Market for Household Furniture
- 2.2. KD Furniture and Future Industry Trends
- 2.3. Reasons for the Increasing US Market for KD Products
- 2.4. Price Segmentation in the US Market
- 2.5. Market Style Segmentation
- 2.6. Assessment of Market Size for KD Furniture by Product Categories

3.0. RETAIL FURNITURE MARKETS IN THE UNITED STATES

3.1. Effects of the Lack of Market Homogeneity on Manufacturers Targeting for US Markets
3.2. Retail Furniture Distribution Channels in the US
- Mass Merchandisers,
- Independent Retailers (whether chains or single stores, publicly or privately held),
- Department Stores,
- Specialty Stores,
- Catalog and Mail Order Merchandisers,
- Discount Stores,
- Home Centre / Do-It-Yourself Merchants,
- Home Electronics and Computer Stores,
- Contract / Interior Design Showrooms.

3.3. Retailer Results from the Study Retailer Questionnaires

4.0. THE TARGET CLIENTELE FOR KD FURNITURE

5.0. CANADIAN MARKET PENETRATION AND IMPORTS

5.1. Projected 1985 Import Growth
5.2. Import Duties
5.3. Industry and Government Reaction to Increasing Imports

6.0. MARKET ENTRY OPTIONS, DISTRIBUTION CHANNELS, TRANSPORT, PRICING PRODUCTS FOR THE MARKET
- Importers / Wholesalers,
- Manufacturer's Agents,
- Warehousing Options,
- Sales Force,
- Distributors,
- Pricing.

6.1. Changing Retail and Wholesale Distribution Patterns
6.2. Product Trends

7.0. PREPARING PRODUCTS FOR THE MARKET
- Selling Literature for the Retailer and the Consumer,
- Packaging,
- Assembly Instructions,
- Point of Sale Material,
- Marketing Techniques.

8.0. SALES PROMOTION
- Advertising,
- Public Relations and Free Editorial,
- Trade Shows and Markets,
- High Point, Dallas, San Francisco, and Atlanta as major regional markets,
- Specialized Industry Sector Shows.

9.0. MARKET STRATEGIES
- Market Evaluation,
- Market Entry Plan,
- Operations Plan,
- Selecting a Market Entry and Operations Plan,
- Promotional Strategy.

10.0. SUMMARY AND CONCLUSIONS

Appendices:

Appendix Table 1 - Retail Sales by Merchandise Groups

Appendix Table 2 - Home Furnishings Sales by Categories

Major Manufacturers in the US KD Market

The Trade Shows and Markets
- The Market System: High Point, Dallas, Atlanta, San Francisco, Chicago, others.

Design Centres

The Trade Press

Some US Warehousing Operations

Definitions

Information Gathering

KD Kitchens in the US Market

Industry Sciences and Technology Canada, British Columbia Wood Specialties Group, 1990. ISTC European Mission. 18p, Vancouver, B.C.

General Overview:

This report is based on a three nation mission which visited French, Italian, and German producers, and attended the SAIE DUE trade fair in Bologna, Italy. The objective was to study the European machinery technology and the wood product lines these countries produced.

1.0. FRANCE

1.1. Overview
1.2. Centre Technique du Bois et de l' Ameublement (CTBA) Tour
- Testing and standards agency for the wood and furniture industry.
1.3. Agent Meetings
- 3 agents were visited and the highlights of the discussions are outlined.
1.4. Site Visits
- Pinault Bretagne
  - Major lumber importer and manufacturer.
- Lapeyre
  - Manufacturer and retailer of a full range of millwork, cabinet, and joinery products.
- BHV Department Store
  - Retail store supplying the Do-It-Yourself (DIY) market.

2.0. ITALY

2.1. Overview
2.2. Site Visits
- Acimall
  - A trade association representing 150 woodworking equipment manufacturers.
- Celaschi Machinery
  - Manufactures woodworking machinery for joinery and window producers.
- Fratelli Feltrinelli
  - Large importer.
- Piceni Serramenti S.P.A.
  - Window and door (security and panel) factory.
- Interholz Italia SRL
  - Gluelam beam plant.
2.3. Saie-Due Trade Show in Bologna, Italy
- Show included a full range of building materials and the related hardware.

Industry, Science and Technology Canada (ISTC). Fact Sheets and Situation Report.

Fact Sheet - Architectural Millwork Sector. April, 1989.

This two page report looks at the architectural millwork sector which is comprised of a small group of companies which manufacture highly crafted and specialized millwork products. The report provides basic statistics (1988) on the industry and on four of the largest companies. The industry's structure and performance are discussed as well as issues of importance such as the Free Trade Agreement with the U.S., supply of raw materials, and future growth prospects.

Fact Sheet - Canadian Machine Profiled Log Home Industry. 1989.

The six page report looks at the machine profiled log home sector which is comprised of companies that machine cut or mill logs to uniform sizes and appearance. The report provides basic statistics (1989) on the industry and describes the industry's structure and performance in terms of exports and trade barriers. It also outlines the issues facing the industry such as log supply and export development. Included with the report is a list of 31 log home companies. For additional information you may contact Murray Hardie, Forest Industries Branch, ISTC.

Melnyk, J.T. Situation Report - Canadian Kitchen Cabinet Industry. July, 1990.

The four page report discusses the sector that comprises companies whose primary activity is the manufacture of kitchen cabinets, kitchen cabinet doors, and bathroom vanities. In the report the author looks at the background of the industry in terms of typical company size and values of factory shipments. He then goes on to discuss the effects of several factors on the industry such as decreased new residential housing construction, decreased demand from the "do-it-yourself" and renovation markets, the recent strengthening of the Canadian dollar against the U.S. dollar, and the Free Trade Agreement. He also provides some basic kitchen cabinet industry statistics (1989).

Jensen International - Alexandria, VA. 1991. Opportunities for Value Added Wood Products - SUMMARY OF FINDINGS. Washington State Department of Trade and Economic Development (DTED), Center for International Trade in Forest Products (CINTRAFOR) - Reprint Series 22, University of Washington - College of Forest Resources. 302p, Seattle, WA.

General Overview:

This study examines in detail the primary wood markets of the Pacific Rim with a focus on investigating the opportunities and constraints facing Washington State's forest products industries. The report analyzes existing raw material supply in Washington and competing regions, recommends specific new technologies for producing value added wood products, and explores methods for financial analysis and options for overseas financing.

The outline below describes the thoroughness of the report's content. Within each section the topics are discussed succinctly and effectively allowing the reader to quickly discern the results of the study.

1.0. INTRODUCTION

- Strategic Framework - Guiding Tactics for Action

2.0. MARKETING

2.1. Introduction

- Japan, Korea, and Taiwan are three of the most important wood consuming countries in Asia.
- Wood Supply and Demand

2.2. Japan

Introduction
- National statistics on economy and resources.

- Construction
  - Growth of non-wooden and wooden construction.
- Residential Construction
  - Steel and concrete structures have gained at the expense of wood housing's share of the market.
- Skyrocketing Real Estate
- Prefabricated Housing
  - Japan is presently the world's leading producer of prefabricated housing.

- Future Trends
    - Future construction will be driven by the need to expand living space.
- Furniture
- Packaging
- Lumber
    - The import volume of all sawn wood products was 9.6 million m3 in 1989.
- Plywood
    - The primary use is in construction, especially in wooden residential, high rise concrete residential, other high rise construction, and civil engineering.
- Engineered Products
    - Engineered wood products are seeing increased use in Japan.
- Laminated Materials
    - Importing of materials used in the processing of laminated materials will expand as domestic demand for laminated material grows.
- Particleboard
- Fibreboard
- Distribution
    - Japan's forest products distribution system.
- Marketing
- Japanese Attitudes Toward Wood and Wood in Housing
- Customer Service
- Distribution
    - Methods to export to Japan
        - Using a U.S. exporter
        - Selling to large Japanese companies
        - Selling to a particular end user via a Japanese trading company.
        - Selling directly to Japanese end users
        - The Canadian model
- Attitude Toward Western Style Housing
- Traditional Post and Beam Construction

<u>Part Two</u>

- Specific product lines upon which Washington companies should focus in order to develop or expand markets in Japan.
    - "Dimension" Lumber
    - Metric Lumber
    - Finishing Lumber
    - Plywood
    - Douglas Fir Veneer
    - Alder Veneer
    - Furniture
    - Packaging
    - Finger Jointed and Laminated Lumber
    - Laminated Veneer Lumber

2.3. Korea

Introduction
- National statistics on economy and resources.

- Construction
    - High-rise construction will dominate Korean building industry in the short run.
- General Construction
    - The use of wood as a major component in construction is limited due to the expense of the material, the scarcity of qualified carpenters, and the perception by many Korean consumers that wood is a poor quality building material.
- Real Estate
- Residential Construction
- Concerns About Wood Use
    - Many Koreans believe that wood is not as resistant as other materials in the harsh Korean climate of cold winters and hot, high humidity summers.
- Future Trends
- Furniture
    - The expanding Korean furniture industry has contributed greatly to growth in wood.
- Other Industrial Products
- Musical Instruments
- Packaging
- Lumber
- Plywood
- Engineered Products
- Distribution
    - Korea's distribution system.
- Marketing
- Consumer Behaviour
    - Brand Loyal Consumers
    - Cognitive Consumers
    - Price Cognitive Consumers
    - Impulsive Consumers
    - Conspicuous Consumers
- Distribution
    - Methods to penetrate the Korean market.

Part Two
- Specific product lines upon which Washington companies should focus in order to develop or expand markets in Korea.
    - Lumber
    - Finishing Lumber
    - Plywood
    - Furniture
    - Finger Jointed and Laminated Lumber

2.4. Taiwan

Introduction
- National statistics on economy and resources.

- Construction
    - Infrastructure improvements and the availability of quality housing will be of more importance in the coming decade.
- General Construction
    - In 1988, residential construction comprised 50.1 percent of new construction permits by area.
- Real Estate
- Urban Construction Practices
    - In urban construction, it is in the interiors that wood is most often used.
- Residential Construction
    - As the population has grown, the number of occupants per dwelling has fallen and the per capita area of the housing unit has increased.
- Wood Use
    - Pricing has an impact on the interior use of wood. Interior wood use should continue to rise as consumers prefer high class interior finishing.
- Future Trends
    - Construction will continue to increase as government funded programs get underway.
- Furniture
- Packaging
- Lumber
    - The largest end user of wood products in Taiwan is the furniture industry.
- Plywood
    - Taiwan's plywood is no longer export oriented.
- Marketing
- Taiwan Business Culture
- Distribution
    - Taiwan's distribution system
- Taiwanese Views on Wood
    - Taiwanese have a sceptical view toward using wood in structural or exterior applications.

Part Two
- Specific product lines upon which Washington companies should focus in order to develop or expand markets in Taiwan.
    - Lumber
    - Treated Lumber
    - Plywood
    - Alder Veneer and Plywood
    - Custom Kitchens and Baths
    - Furniture

3.0. RAW MATERIALS ANALYSIS

Introduction
- This section examines the raw materials base for forest products industries in important producing nations around the Pacific Rim.

3.1. Western Washington

- This section examines the supply of timber focusing more on the available quality of timber rather than the available quantity.
- Regional Analysis: Puget Sound, Olympic Peninsula, and Southwest.
- Inventory Analysis: Olympic Region, Puget Sound Region, Southwest Region.

3.2. Competing Raw Materials

- This section is a brief overview of the competing forest product industries of seven nations around the Pacific Rim - the forest resources and the exports of these countries.
- Canada, Chile, Indonesia, Malaysia, New Zealand, Papua New Guinea, USSR; as well as information on Rubberwood.

4.0. TECHNOLOGY

4.1. Introduction

- For each technology there is a four-part analysis:

  - Introduction - A brief description of what is new and/or what is critical to the selection of the specific technology.

  - A discussion of the recommended technology and the rationale for its installation and use.

  - A descriptive analysis highlighting lending manufacturers and, where possible, specific applications.

  - Summary

4.2. Sawmilling

4.2.1. Scanning
- Grade Scanning
- Optimization
- Sawmill Edger
- Crossed Beam Scanner
- Laser-Camera System

- Light Array Scanners
- Sawmill Trimmers
- Planermill Trimmer
    - Cost Justification for Trimmer Optimization

4.2.2. Primary Breakdown
- Small Log Headrigs
    - Scragg
    - Hewsaw
    - Linck Canter
- Dual Carriage De-Coupled High Speed End-Dogging Carriages

4.2.3. Secondary Breakdown
- Splined Arbor Gang Edgers

4.2.4. Thin Kerf Sawing
- Cost Justification for Thin Kerf Sawing

4.2.5. EGAR / SDR Techniques
- Edge Glue and Rip (EGAR)
- Saw Dry Rip (SDR)

4.3. Engineered Wood Products, Plywood, and Equipment

4.3.1. Log Peeling Systems
- Spindleless Lathe
- Small Block Peeling
- Softwood Lathe

4.3.2. Laminated Veneer Lumber

4.3.3. Other Engineered Products
- Oriented Strand Board
- Scrimber
- Com-Ply Lumber
- Blockboard

4.3.4. Membrane Presses
- Operation of a typical membrane press.

4.3.5. Edgebanding
- Materials frequently used for edgebanding.

4.4. Optimizing Cut-off Saws, Fingerjointing, Edge Gluing and Laminating

4.4.1. Optimizing Cut-off Saws
- Cost Justification

4.4.2. Fingerjointing

4.4.3. Edge Gluing

4.4.4. Structural Laminating Presses

4.5. Non-Destructive Testing

4.5.1. Machine Stress Rating

4.5.2. Acoustic Techniques

4.5.3. Waveform Analysis

4.5.4. Transverse Vibrational Techniques

4.5.5. Microwaves

Jones, Chandler W. Fingerjointing can raise solid-wood recovery. Forest Industries. July/August, 1990. pp 32-35.

This article provides an overview of solid-wood fingerjointing. It begins by looking at the history and development of fingerjointing technology. The paper then discusses areas of interest such as types of joints, non-structural joints, structural joints, and the use of fingerjointing technology in laminated beam plants. Throughout the paper the technical advantages and capacities of different machine designs are examined. Jones concludes by discussing the capabilities of low-cost, low-production fingerjointers and also emphasizes the importance of precise tooling and machine upkeep.

Juslin, H., Tarkkanen, T. 1987. Marketing Strategies of the Finnish Forest Industries. The Finnish Forest Research Institute, Helsinki, Finland. 51p.

General Overview:

The aims of the study are both theoretical and empirical. The first purpose is the clarification of the strategy concept. This also includes the creation of operational measures and the generation of a basis for assessing the rationality of strategies. The second purpose is the description of present marketing strategies of the Finnish forest industries, and the assessment of their rationality. The study deals with the Finnish sawmill, wood-based panel, and paper and paperboard sectors.

The main purpose of the study is to aid strategic planning in the Finnish forest industry. The aim of the analysis of concepts is to create a common language for the discussion dealing with strategies. The empirical part of the study describes the present marketing strategies used in the forest industry. By combining the theoretical and empirical analysis, it is possible to judge the rationality of present marketing strategies.

The areas of study are:

1. Analysis of the strategy concept and choice of the system of describing strategy to be used.

2. Development of operational measures for the descriptive system.

3. Derivation of theoretical hypotheses concerning rational combinations of strategies under given conditions.

4. Description of the marketing strategies of the Finnish forest industry.

5. Analysis of the rationality of the marketing strategies (under defined conditions).

6. Analysis of the connection between strategy and the functional level of planning (product planning).

Juslin, H., Larronmaa, A., Niemelä, J. 1990. The Development of Marketing Strategies of Finnish Forest Industry During the 1980's. Dept. of Forest Products Marketing, University of Helsinki, Finland. 17p.

General Overview:

This study describes the marketing strategies of the Finnish forest products industry in the beginning and at the end of the 1980's. By comparing the early 1980's with the late 1980's strategies it is possible to evaluate the development during the decade.

There are measurements taken from the same sectors of the forest industry and mainly same companies both in the beginning and at the end of the 1980's. The areas investigated are: Customers, Products, Geographical limits of market area, and Competitive advantages.

Massey, Rick. Overlaid plywood faces worldwide market gain. World Wood. February, 1989. pp 24-26.

This article analyses the uses and growth of overlaid plywood in the world today. It contains tables showing estimates of film-faced plywood production, 1975-95, and a comparison of profitability between basic plywood and film-faced plywood. Massey gives credit to the Finnish plywood producers who have been instrumental in the development of the overlay process which can increase the value of basic plywood by as much as 50%.

The article also includes a brief review of Simpson Timber Co. which is the largest producer of phenolic overlaid plywood in the United States. The review looks at Simpson's overlay system, new equipment purchases, and the advantages of producing their own overlay materials.

Massey, Rick. Fast overlay system makes quick deliveries possible. World Wood. February, 1990. pp 26-27.

This article gives a brief review of a new single-opening press system. The system produces small numbers of overlaid panels quickly and economically. Massey describes the operation of the press as well as the advantages of a versatile design. A table is provided showing recent installations of Raute single-opening, short-cycle overlaying lines in Finland and France.

Mater, Jean. 'Value-added' products: key to competition. Forest Industries. March, 1990. pp 20-22.

The article provides a brief examination of the growing importance of value-added products to U.S. solid wood manufacturing. The industries' threats from global competition and the industries' opportunities for profitability and growth in this area are examined. The paper emphasises that making secondary wood products is more than a matter of survival; it offers opportunities that primary manufacturing cannot.

Mater, Jean, 1992. Marketing Forest Products - Gaining the Competitive Edge. Miller Freeman, Inc. 290p, San Francisco.

General Overview:

This book provides a detailed overview of marketing. It is focused on markets, issues and examples in the United States.

The book applies new concepts and terminology in marketing to the forest products industry. It is addressed to both the newcomer and the experienced marketer. It is especially aimed at the needs of smaller and medium sized companies where marketing is but one of the manager's jobs.

This is intended to be a "how-to", self-help book, accompanied by extensive background for those who want more information. Ideas are summarized in useful checklists. Throughout the book are details on finding and promoting niche products, lists such as 25 ways to differentiate industrial wood products, comparisons of different types of distribution, and methods of pricing products.

Four appendices are included: there is a glossary explaining many of the terms used in this book; a directory of forest industry organizations, which includes the names and addresses of the majority of specialized associations that serve the industry; a list of forest industry trade journals; and a list of marketing reference books and periodicals useful for marketers.

Chapter I: Marketing Forest Products
- Not Like Marketing Toothpaste

- What is Marketing
- It's Not Like Marketing Toothpaste
- The Four P's of Marketing -- Old Concepts, New Roles
- Drawing a Marketing Roadmap
- Selecting a Strategy
- Making Marketing Decisions in a Changing Environment
- Megamarketing
- The Tools of the Megamarketer
- Megamarketing to Gain Public Support for the Forest Industry

Chapter II: Wood Products
- Something for Everyone

- Wood Products
- Wood Products Viewed as a Package of Benefits
- A Marketing Perspective of Forest Products
- Marketing Breeds Opportunities

- Why Wood Products?
- Singularization -- Built-In Product Differential
- Singularization is the Hallmark of the Marketing Mentality
- Singularization and the Green Revolution
- Developing New Wood Products, Expanding Product Lines
- If You Can't Lick 'Em
- Strategies for the Established Product

Chapter III: Customers are Kings
- Who They Are, What They Want, Why They Buy

- Who are Customers?
- Segmenting the Consumer Market
- Segmenting the Industrial Market
- A Program For Expanding a Customer Base
- Minimizing Risks in Market Segmentation

Chapter IV: Markets
- Finding Segments, Niches, and Trends

- The "Growth Market" -- Myth or Reality?
- Niche Markets
- Ten Steps in Developing a Niche Market
- Finding a Niche
- Special Markets
- Fickle Consumers Alter Markets
- Developing A "Trend Sense"

Chapter V: Standing Out From the Crowd
- Product Differentiation and Positioning

- Techniques for Differentiating Products
- Developing Product Differentials
- Differentiated Marketing of a Product Line
- When the Product Differential is Negative
- Positioning

Chapter VI: To Market, To Market
- Moving the Product From the Factory to the Customer

- Distribution Channels -- Meeting Customer Needs
- Differences in Distributing Industrial and Consumer Wood Products
- Choosing the Appropriate Channel for a Wood Product
- Innovative Distribution
- Middlemen
- Specialized Distribution Channels
- Reverse Channels or Full Cycle Distribution

McKeever, D.B. Composites as a way to add value to the timber resource. Proceedings, XIXth International Union of Forest Research Organizations (IUFRO) World Congress, Division 5. p. 288-298. August 5-11, 1990, Montreal, Canada.

This paper examines the economic benefits derived from the timber resource in the United States. Of particular interest is the contribution made by the solid-wood primary timber processing industries. This includes both the harvesting of the timber resource and its conversion into lumber, plywood, composite wood panel products, and treated wood products.

The paper presents a method of ranking the relative contribution of these primary timber processing operations to the economy. It is based on existing indicators of economic activity within each of the processing industries. This method measures the value of the final product as being the ratio of the value added from manufacturing to the value of industry shipments. The ratio is developed for each primary product and is used to evaluate and recommend the product with the greatest potential for increasing the value of the timber resource.

The study also provides a good analysis of the two-digit Standard Industrial Classification (SIC) code for those industries that primarily use or manufacture products from wood.

McWilliams, Jim. Remanufacturing: What kind of a business is it? Canadian Forest Industries. May, 1990. pp 8-12.

This article examines what is involved in a remanufacturing operation. The author analyses step-by-step the business characteristics of the remanufacturing industry and the essential requirements for success.

Included in the analysis are brief profiles of three British Columbia Lower Mainland remanufacturers. Approximate figures were asked for and in some instances, the author used his own knowledge and judgement. The annual volume of production was used to determine the distinction between small, medium and large operations. The information in these profiles includes raw materials, products, sales, costs, profit margins, inventories, etc., and serves to emphasize the dominance of raw material costs in controlling mill profitability.

Meil, J.K. Value-added Trends and Technology Feasibility Limits in Canadian Softwood Lumber Producing Regions. The Forestry Chronicle. 66(1), 45-50, February, 1990.

Value-added information in conjunction with conversion cost information can be a useful aid in predicting the timing of the adoption of new technologies. Value-added and variable cost trends were analyzed over 1970 to 1984 for four softwood lumber producing regions in Canada --> B.C. Coast, B.C. Interior, Ontario, and Quebec. The observed value-added trend for each region's total product-mix was found to decline over time.

The purpose of this study is to illustrate recent regional industry value-added trends; to describe the interrelationship between value-added and technology advancement in the industry; to introduce value-added as an indicator of technological change; and to demonstrate the results of how simple value-added analysis coupled with production cost information can be used to assess and predict technology change, either at the industry or firm level.

Milroy, R. Everyone's into value added. Canadian Forest Industries. August/September, 1991. pp 14-17.

This article gives a brief introduction to value-added manufacturing. It gives examples of both small companies and large companies who are successfully producing value-added products. The article strives to define value-added and the other synonyms associated with this sector of the forest industry. Because this part of the industry of often characterized by small niche-oriented businesses, the paper emphasizes that one of the biggest problems facing the typical value-added business is finding the right raw materials to take advantage of manufacturing skills and to satisfy market needs.

Ney, H.D.W., Informat Services Inc., 1988. "Adding Value to B.C. Solid Wood Products - A Symposium". 36p, Nanaimo, B.C.

This symposium report contains brief abstracts of the presentations given. It serves to outline the important issues and constraints facing the issue of adding value to solid wood products.

1.0. Developing a Strategy

- 1.1. Historical Perspective
  Mr. Ed Manning
- 1.2. Opportunities and Challenges
  Mr. Bob Craig and Mr. Ed Manning
- 1.3. The European Experience with Value-Added Products
  Mr. Tord Wadell

2.0. The Marketing Component of a Value-Added Strategy

- 2.1. The Importance of Marketing
  Mr. Bob Craig
- 2.2. The Market for Value-Added Wood Products
  Mr. Peter Drake
- 2.3. MacMillan Bloedel's Experience in Marketing Value-Added Products
  Mr. Bill St.John
- 2.4. The Japanese Market for Value-Added Wood Products
  Mr. Seiji Omote
- 2.5. Adding Value Through Marketing
  Mr. Tim Kerr

3.0. The Production Component of a Value-Added Strategy

- 3.1. Operating Practices for Higher Values
  Mr. Bob Craig
- 3.2. The Trend to Added Value in Coast Sawmills
  Mr. Ron Simms
- 3.3. Linking Production to Marketing
  Mr. Eric Bayntun
- 3.4. Opportunities for Adding Value in Primary Sawmills
  Mr. Phil Dobson

4.0. Implementing a Value-Added Strategy

4.1. The Precepts of a Value Strategy
Mr. Peter Almgren

4.2. Establishing a Value Added Mill: Bayside Sawmills
Mr. Dale Tsuruda

4.3. Requirements for Implementing a Value Strategy
Mr. Ted Cameron

5.0. Appendix: Keynote Address -- Trends in the World Forest Economy; The Impetus for Change in the B.C. Forest Industry
Mr. Jaak Puusepp

Nielson, R.W., 1986. Technological Needs in Lumber Remanufacturing. Prepared for: Forintek members and supporters, and may be distributed to other persons or parties only with the prior permission of Forintek Canada Corp. 22p, Vancouver, B.C.

General Overview:

The objective of this study is to determine the technological needs of the softwood lumber remanufacturing sector in B.C. The study focusses on the technology required by remanufacturers to extract higher-value products, on current plant and equipment deficiencies, on areas where current Forintek R & D programs are relevant, and on areas where remanufacturers could benefit significantly from new technology transfer and research efforts.

This report is based on information obtained from a survey of remanufacturing plants, relevant published literature and equipment suppliers. An effort is made to define remanufacturing, describe the nature of existing operations, and outline some factors affecting the technology employed. Conclusions re technological needs are based on the author's observations, input from remanufacturing plant managers, and discussions with Forintek technical staff.

Nordic Timber Conference, 1990. International Conference and Exhibition on Nordic Timber for Joinery and Furniture. 104p. Umeå, Sweden.

PRESENTATIONS:

The development of Europe's timber using industry.
Mr Patric Fredell,
Chairman of the Swedish Wood Exporters' Association

Global timber supply.
Mr Tim Peck,
Director, UN-ECE/FAO Agriculture and Timber Division

- The global forest resource
  - Information (1987/88) on world population and land area distribution by region, area of productive and unproductive forest by region, estimated areas of coniferous and broadleaved forest by region, growing stock and increment.

- Regional distribution of the forest resource
  - Information on the USSR, North America, the tropical regions, Latin America, Asia/Oceania, and other regions such as China, India, the Near East, Europe, and other developed countries.

- Discussion and conclusion
  - Information on the changing forest resource (quantity and quality), and the general wood demand/supply balance.
  - Data from 1986/87 showing roundwood removals by region, production of forest products by region, totals of regional exports/imports, and identifiable trade flows in selected forest products.
  - Outlook for demand and supply

Quality joinery output from tropical countries and North America, including environmental aspects.
Prof Lennart Schotte,
Chairman of the Royal Swedish Academy of Agriculture and Forestry

- Information on expected export development of logs and sawn lumber in the evaluated south east Asian and African countries, British Columbia Coast and Interior AAC and harvest of softwood timber, annual growth and harvest of softwood timber for U.S. Pacific Coast, and cutting levels 1987 and estimated levels 1995 and year 2000.

Swedish and Finnish quality joinery timber output.
Prof Matti Kärkkäinen,
Business Area Manager, Jaakko Poyry Oy

Present use of timber and structural change in European joinery and furniture industries.
Mr Lars-Göran Sandberg,
President and CEO, Timwood AB

- Information on the number of companies in Europe per industry segment (windows, doors, furniture), distribution of wood species for use in each segment, and future trends of strategic performance.

Future requirements for sawmill products, to satisfy the needs of the furniture industry.
Mr Paolo Petris,
Purchasing Manager of ISE, Italy

Development of a new softwood/aluminum window.
Mr Pierre Bonnet,
Managing Director, MC France

Utilizing softwood from the manufacturers' point of view.
Mr Roy Wakeman,
Deputy Managing Director, Crosby-Sarek Ltd, Great Britain

Development of windows in Holland: Raw materials and product development today.
Mr Aad van der Velden,
Managing Director, Centrum Hout, Holland

Cooperation between sawmill and window producer - Purchase of timber for the window industry.
Mr Josef Höbenreich,
R&D Director, SP-Snickerier AB, Sweden

The Swedish Sawmilling industry 1990.
Mr Lars Strängh,
Managing Director, The Swedish Wood Exporter's Association

- Industry structure, equipment, value-added remanufacturing, typical specialization, education, research and integration.

- Information on the total number of sawmills in operation (1990), final utilization of Swedish sawmill products, map of Swedish sawmills in operation in 1989 with an annual production larger than 10,000 cu.m., structure and capacity of Swedish remanufacturing companies (1989), and approximated quantities of remanufactured product groups.

Developments in the Finnish sawmill industries - facts, statistics, and investments.
Mr Pekka Snäll,
Managing Director, Finntimber - Finnish Timber Exporters' Association

- Information on the sawmill industry - potential production to year 2000, ten biggest sawntimber producers, number of sawmills and their capacity in Finland, Finnish sawn timber exports in 1989, and the number of sawmills producing specialties.

Changes in forestry and sawmills to match the needs of the joinery industries.
Mr Fredrik Luhr,
Managing Director, Skogsägareföreningen Mellanskog

- Discusses the alternative strategies sawmilling companies face: producing ordinary sawn timber, sawing for specific product categories, sawing for a customer's specific production.

- Emphasizes the total picture: raw material, sawmill, end user.

- Making the chosen strategy work: marketing and selling, distribution, a new meaning for the term "quality", research and development.

The gradual transformation of traditional export sawmills.
Mr Ola Hildingsson,
Managing Director, SCA Timber AB

- Outlines raw material situation, sawing, drying, grading, distribution, research and development.

Administration and customer needs.
Mr Bo Borgström,
Sawmill Division Director of Tampella Ltd/Tamwood

Integrated wood processing, the potential to produce grades to suit joinery customers.
Mr Vesa Heinonen,
Marketing Director, Walkipuu Oy

How to reduce costs by 3000 SEK per m^3 in the joinery business.
Mr Bo Ekstedt,
Group Controller, Domänföretagen

- Examples are given to show possible cost reductions in a window frame factory when altering raw material from standard grade sawn timber to modified sawn timber, from modified sawn timber to blanks, and from blanks to components.

Ringe, J.M., Hoover, W.L. Value added analysis: a method of technological assessment in the U.S. forest products industry. Forest Products Journal. 37(11/12):51-54, 1987.

Value added analysis assesses the difference between log costs and the value of the resulting products. The purpose of this study is to develop a method for monitoring the relationship between raw material prices and the upper limit costs that can be covered in acquiring and converting logs into products. In doing so, value added trend analysis shows significant potential as a technology assessment tool for the wood industry.

The study was undertaken to develop value added trends for a variety of log grades converted into structural products by alternative technologies. Value added projections were made for various grades of Douglas-fir peeler logs and sawlogs converted into lumber; southern pine peeler logs converted into veneer; and for aspen pulpwood converted into waferboard and oriented strandboard.

Saican Consultants Inc., Montreal, in collaboration with Sandwell Inc., Vancouver and SMG Corporate Consultants Inc., Paris. 1991. Europe 1992 and Canadian Value-Added Wood Products. Prepared for: European Community Division, External Affairs and International Trade Canada (EAITC), Ottawa. 59p.

General Overview:

This report describes the evolving European Community market for value-added wood products and recommends measures that Canadian companies must adopt to establish or retain a stable business position. The four leading regional markets are emphasized - France, Germany, Italy, and the United Kingdom.

The report is based on a review of past research on market opportunities, an analysis of European market structure and trends, interviews with key actors and observers in the regional markets, and an analysis of opportunities in relation to required investment or operational changes by Canadian mills.

After doing an overview of the European market and of the key characteristics of the four target countries, the report discusses competitor strategies, and the opportunities and requirements for market development. The specific steps that must be taken to develop and defend a market position in Europe are outlined.

APPENDIX I: Selected Contacts in European Timber Trade

France
- Agents of Selected Canadian Exporters of Coniferous Wood and Plywood
- Other Agents
- Major Distributors of Wood Building Products

Germany
- Selected Contacts:
- Manufacturers of Glulam Beams
- Agents
- Do-It-Yourself Chains
- Manufacturers of Wooden Windows and Doors
- Manufacturers of Remanufacturing Products
- Importers Specializing in Distribution to DIY Chains

Italy
- Major Lumber Importers
- Lumber Agents

United Kingdom
- Selected Contacts:
- Agents
- Semi-Finished Wood
- Marketers and Distributors of Timber
- Machined Wood Products
- Window Frames and Building Components
- Roof Trusses
- Associations

Scaramella, G., H.A. Simons Ltd. (Simons Strategic Services), 1990. Overview of Value Added Wood Product Markets. 17p, Vancouver, B.C.

General Overview:

This analysis presents an overview of the opportunities and constraints facing the British Columbia forest industry when considering value added wood products.

The paper includes an analysis of the recent development of the Indonesian forest products industry. Log exports were banned ten years ago and since then the industry has moved from five plywood mills to over 100, along with reductions in the export of any lumber except in the form of furniture components and furniture. Scaramella uses the Indonesian experience as an example of the benefits that can exist when there is cooperation between industry and government working actively toward the same goal.

The author also emphasizes that the value added cottage industry that is developing will be fazed out and will be eventually replaced by well financed integrated operations. Small, underfinanced shops have difficulty competing in a global industry where effective global marketing requires an understanding of differences in tastes, habits, preferences, and knowledge of shifting demographics.

Topics discussed include:

Why Value Added?
The Problems with Commodities.
More Throughput isn't the Answer.
What are the Market Opportunities?
Markets.
Why Us in BC?
First, we have the trees.
Second, there is still old growth.
We have the volume.
Sound Infrastructure.
Business Culture.
SBFEP.
Labour Costs.
Interest Rates and Exchange Rates.
Environmental Constraints.
Distance to the Markets.

Schug, Deborra. Elk Wood Specialties was built on - Opportunity in Reman. Logging & Sawmilling Journal. May, 1989. pp 17-19,34.

This article discusses Elk Wood Specialties Ltd., of Maple Ridge, B.C. It is based on an interview with Ted Cameron, one of the reman plant's founding partners. The article begins by briefly looking at Cameron's background and then discusses the partnership development with Emachu Corporation of Japan. The new (1989) mill's equipment and capabilities are mentioned as well as the products and target markets. Cameron concludes by outlining what is fundamentally necessary for success in the reman industry and the problems of greatest concern.

Schuler, A.T., Meil, J.K. Markets, Products and Technology in the 21st Century - A Canadian Solid Wood Products Perspective. The Forestry Chronicle. 567-571, December, 1990.

This paper provides an excellent analysis of the issues and concerns facing wood products manufacturing in Canada. It discusses the future trends of the Canadian wood products industry from the perspective of the interaction of markets, products, and technology. The focus of the paper will be on the implications of these trends and a presentation of the author's views of the major changes in store for the 1st quarter of the 21st century.

Topics discussed include:

- Current Markets, Technology and Products
- Factors Precipitating Change in Wood Use
    - Resource Factors and Implications
    - Market Factors and Implications
    - Product Trends and Implications
    - Technology Related Factors and Implications
        - Conversion Technology Factors and Implications
        - End-use Technology Factors and Implications
        - Product Technology Factors and Implications
- Conclusions - A Crystal Ball View of the 21st Century

Simons Strategic Services Division, 1991. The Hardwood Processing Sector in British Columbia. Prepared for: Western Economic Diversification Canada, British Columbia Ministry of Development - Trade and Tourism, Victoria, B.C. 61p, Vancouver, B.C.

General Overview:

The study focuses on the coastal alder resource and on the interior birch resource. Other hardwood species, such as aspen and cottonwood, are not included in the terms of reference, as these species are largely committed to other uses. The study is restricted to solid wood product and byproduct options, and did not include alternatives such as: energy, firewood, briquettes, smoking chips, reconstituted board products such as OSB or MDF, or any pulp and paper options other than chip production.

The report does an effective job in presenting the opportunities and constraints facing the entire BC hardwood industry. It examines the hardwood industry in terms of raw material supply and use (both quality and quantity), products manufactured (primary, secondary, and tertiary facilities), volume and value of production, markets, and economic considerations such as financing and capital performance. It also analyses issues affecting industry development and profit potential.

The study emphasizes that one of the biggest barriers facing the industry is establishing markets for the lower grades of products. In regards to alder, more research needs to be done to the determine the long term sustainability of the resource. In regards to birch, falldown product markets must be addressed and processing facilities should evolve as possible hardwood/softwood operations.

1.0. INTRODUCTION

2.0. CURRENT INDUSTRY STRUCTURE IN B.C.

2.1. Introduction

2.2. Coast
- Inventory and Log Production
- Chip Production
- Primary Manufacturing
    - Lumber Production
    - Panel Production
    - Pulp/Paper
- Secondary Manufacturing
- Summary

2.3. Interior
- Inventory and Log Production
- Chip Production
- Primary Manufacturing
  - Lumber Production
  - Panel Production
  - Pulp/Paper
- Secondary Manufacturing
- Interior Hardwood Log Consumption Mix

2.4. Province
- Log Exports

2.5. US Pacific Northwest
- Inventory and Log Production
- Primary Manufacturing
- Secondary & Tertiary Manufacturing
- Issues Surrounding the Pacific Northwest Hardwood Industry

3.0. ISSUES AND CONSTRAINTS

3.1. Introduction

3.2. Resource
- Quality; What Quality and Where Is It?
- High Logging Costs
- Seasonal Pattern of Logging
- Resource Management of Government Policies
- Volumes; Here Today but Where Tomorrow

3.3. Markets
- Good High Grade Markets; Limited Falldown Markets
- No Domestic Chip Market
- Specialty Mentality is Critical
- Distribution Channels are Critical
- Restrictions on Log Exports
- Other Product Options Exist for BC Hardwoods

3.4. Process
- Management is Crucial and Technology is Available
- With Respect to Kiln Dried Hardwoods; Demand and Supply are not in Balance

3.5. Economics
- Limited External Sources of Funding Available
- Production Economics
- Labour Rates
- Residue Disposal Costs

Sinclair, Steven A., Smith, Paul M. 1990. Product awareness and physical risk perceptions of consumers of treated lumber. Wood and Fiber Science. 22(1):80-91, 1990.

This research examines risk, an important determinant of consumer decision-making, as a function of product awareness and physical risk perceptions. Specifically, this study addresses the risk from treated lumber products that professional and do-it-yourself retail customers perceive. In September 1985 a settlement agreement between the Environmental Protection Agency (EPA) and the wood preserving industry regarding the use and sale of wood-treating chemicals was signed. One aspect of this agreement involved the education of consumers as to the proper use, handling, and disposal of the preservative-treated products. Consumer Information Sheets, the backbone of the Consumer Awareness Program, were employed to disseminate these basic safety precautions. This study measures the effectiveness of the Consumer Awareness Program by evaluating consumer awareness of the Consumer Information Sheets and evaluates the knowledge, awareness, and physical risk perceptions that retail customers have regarding treated lumber products.

The major goals of this paper are concerned with the social risk issues. Attendant to this objective is the evaluation of overall consumer knowledge and awareness in terms of the following:

1. chemicals used in treated lumber products,
2. brand names,
3. durability of treated lumber products versus competitive wood materials.

Secondly, physical risk perceptions from a safety standpoint will be addressed to evaluate consumer acceptability of the risk posed by treated lumber products.

Sinclair, S.A., Trinka, M.W., Luppold, W.G. Ready-to-assemble furniture: marketing and material use trends. Forest Products Journal. 40(3):35-40, 1990.

This paper outlines an exploratory study of ready-to-assemble (RTA) furniture producers in the U.S. The study was undertaken to better understand the importance of this industry in terms of sales growth, marketing practices, and material use trends. Sales growth has been rapid and producers expect strong growth in the future. RTA furniture sales are handled primarily by manufacturer's representatives and captive sales staffs with most sales directly to retailers, home improvement centres, and discount mass merchants. Respondents predicted that industrial particleboard, wood veneer, hardwood lumber, medium density fibreboard, and high density laminates would be the fastest growing materials used in RTA furniture in the near future.

Sinclair, Steven A., 1992. Forest Products Marketing. McGraw-Hill, Inc. 403p, Virginia.

General Overview:

This book is designed to allow people interested in the forest products industry gain a basic understanding of forest products marketing from the perspective of the U.S. industry.

Marketing is emphasized as being a critical activity necessary for business success. It is not shown as a collection of academic theories but rather is presented through examples of real companies and data on major markets.

The book begins with an explanation of the concept of marketing and proceeds to explain the historical development of marketing in the forest products industry. Several chapters are devoted to the fundamentals of marketing and marketing/business strategy development. Each of the major forest products markets are then examined with numerous real-world examples of how specific companies utilize marketing in their corporate strategy. Growing international markets are also discussed along with an overview of export marketing basics. The last chapter explains how marketing is organized in forest products firms.

Appendix A provides case studies of real forest products firms struggling to implement marketing strategies and solve business problems.

In Appendix B is a series of short biographical sketches of major North American forest products producers along with selected retailers and specialty manufacturers.

Part I - Overview and Introduction

Ch 1 - What is Marketing Anyway?
- How will I know marketing when I see it?
- Don't put marketing in a box

Ch 2 - Historical Development of Forest Products Marketing
- Lumber
- Pulp and Paper
- Integrated firms
- Competitive beginnings

Part II - Marketing Fundamentals

Ch 3 - Markets
- Defining target markets
- Effective segmentation
- Finding new markets
- Evaluating market attractiveness
- Market attractiveness/competitive position
- Sources of wood products market data

Ch 4 - Products
- Product differentiation
- Types of products
- Product branding
- Product life cycle
- Product positioning
- Product deletion
- New product management

Ch 5 - Distribution
- Just who are these intermediaries?
- Channel strategies
- Distribution trends
- Physical distribution

Ch 6 - Pricing
- Pricing objectives
- Pricing strategies
- Legal considerations in pricing

Ch 7 - Promotion
- The marketing mix
- The promotional mix
- Push-pull strategies
- What does the wood products industry really do?

Part III - The Nature of Competition

Ch 8 - Using Economist's Tools
- Supply and demand
- Market structures

Ch 9 - Generic Competitive Strategies
- How do you outfox the competition to achieve a competitive advantage?
- Quality as a source of competitive advantage
- Understanding competition
- Generic strategies of competition
- Implementing strategy

Smith, P.M., Ma, H.O., 1990. The Global Wooden Furniture Industry: An Emphasis on the Pacific Rim. Center for International Trade in Forest Products (CINTRAFOR) - Working Paper 25, University of Washington - College of Forest Resources. 32p, Seattle, WA.

General Overview:

This paper explores the competitive factors in the wooden furniture trade within the Pacific Rim. It focuses on: the U.S., as the largest furniture market in the world, Taiwan as the largest furniture exporter to the U.S., and South Korea as a potentially large player in the future.

The study also provides a brief review of the world's major producing, exporting and importing wooden furniture markets. In doing so, it outlines the directions and strategies manufacturing nations are taking to remain competitive and grow in an increasingly global market.

The report segments the major furniture exporting and importing nations into two groups. One group is those countries belonging to the Organization for Economic Cooperation and Development ("OECD") category. The other group is those nations belonging to the "developing" country category.

ORGANIZATION for ECONOMIC COOPERATION and DEVELOPMENT (OECD) FURNITURE TRADE:

INTERNATIONAL FURNITURE INDUSTRY:

North America
- Canada
- Mexico

South America
- Brazil and Chile

European Economic Community (EEC)
- Italy
- West Germany

Scandinavia

Pacific Rim
- Japan
- Malaysia
- Thailand
- Philippines

THE UNITED STATES WOODEN FURNITURE MARKET AND INDUSTRY:

The U.S. Wooden Furniture Market
- Wooden Furniture Market Segments
- Demand Factors
- U.S. Consumer Buying Patterns
- Retail Sales

The U.S. Wooden Furniture Industry
- Industry Structure
- Leading Manufacturers
- Supply of Raw Materials

Foreign Trade
- Imports
- Exports

TAIWAN WOODEN FURNITURE INDUSTRY:

Overview

The Furniture Industry
- Industry Structure
- Production

Imports of Raw Materials

Export Trends

KOREAN WOODEN FURNITURE INDUSTRY:

Overview

The Furniture Industry
- Industry Structure
- Production
- Imports of Raw Material
- Exports

ISSUES IN THE PACIFIC RIM WOODEN FURNITURE TRADE:

Changing Market

Exchange Rates and Labor Costs

Trade Barriers

Raw Materials

Comparative Advantages

Sorensen, Jean. Green market power -- New-wave buyers help bring log home construction into the big time. Logging & Sawmilling Journal. November, 1990. pp 22-25.

This article looks at the development and success of "True-Craft Log Structures" of Maple Ridge, B.C. The largely family owned and operated business has experienced dramatic growth since its beginnings in 1985. The company specializes in producing "pure" wood homes using primarily cedar and then selling the homes in kits. With the introduction of their own window and door plant the company is able to control all facets of the kit they produce making the kit one of the most complete on the market.

The markets for their kits include Canadian buyers, European and Asian countries, and recent expansion into the U.S. Presently, production is averaging 12 units per month and demand is continuing to grow.

Sorensen, Jean. The specialty boom. Logging & Sawmilling Journal. May, 1990. pp 26-29.

This article analyses the development of British Columbia's wood products remanufacturing sector. The paper uses examples of several companies who have experienced tremendous growth in this sector to illustrate its potential.

The article briefly outlines the function and influence of two associations, the British Columbia Wood Specialties Group (BCWSG), and the Independent Lumber Remanufacturers Association of B.C. (ILRA). These organizations have company memberships and offer marketing advice and other representative services.

Included in the article is a small report titled, "An "awakening" to hardwood potential". It gives a very brief outlook on the future of hardwood processing and remanufacturing in British Columbia. Its main focus is on Pacific Green Gold's new mill and reman centre to be constructed in northern B.C. The mill will process Birch into a variety of products. Examples of other B.C. companies are given to illustrate the growing use and future potential of hardwoods as a wood source for high value products.

Sorensen, Jean. Modular goes mainstream. Logging & Sawmilling Journal. July/August, 1991. pp 19-21.

This article discusses the Langley, B.C. based (Calgary headquartered) Nascor company. The Nascor prefab system uses composites, preserved wood, finger-jointed material, and oriented strand board, which it cuts in a backshop to form exterior walls, preserved foundations, and roof and floor joist systems. The article emphasizes the advantages of the Nascor system. This includes faster and easier building erection due to the simple assembly of the sections, and energy cost savings due to superior insulation. A wide variety of building designs are possible using Nascor's prefab system.

Sorensen, Jean. Window of opportunity - Milestone Wood Products heralds a new era for value-added mills in B.C. Logging & Sawmilling Journal. February/March, 1992. pp 12-15.

This article outlines the development of Milestone Wood Products Inc., in Armstrong B.C. The paper discusses all the phases of development including location of investors, procurement of raw materials, and the product to be manufactured for the German-based customer. The paper provides a detailed description of the mill's flow and emphasizes the investment in the world's finest equipment and employee surroundings. The focus is on the highest possible quality standards.

Stirling, Jim. Canadian Forest Products: Netherlands Division -- Joinery mill onstream. Logging & Sawmilling Journal. November, 1990. pp 9-13.

This article describes Canfor's new (1990) value-added joinery plant in Prince George, B.C. The plant, which relies on visual, manual grading to determine cutting decisions, came onstream in May, 1990. It converts lodgepole pine into select, high demand premium items like door and window frame stock.

The paper briefly outlines the history of the Netherlands Division from originally producing rough green lumber and CLS lumber to the discovery of the joinery market in the 1980's.

Stirling then describes the mill outlining the machine centres, products, markets, and the joinery mill's integrated flow design with the large log mill which produces commodity lumber products.

Stureson, F.N., Sinclair, S.A, 1988. A Consumer View of Ready-To-Assemble Furniture. Available for a fee from: Forest Products Marketing Program - Virginia Polytechnic Institute & State University. 100p, Blacksburg, VA.

General Overview:

Very little information is available to marketers and manufacturers of furniture and home furnishings regarding how ready-to-assemble (RTA) furniture is perceived by the final consumer. This study is designed to fill a part of the need for current, accurate and nationwide consumer information among the many industries that are involved in producing and bringing RTA furniture to the U.S. furniture market.

This study, which examines nearly 1,500 U.S. households, shows that consumers' perceptions and attitudes toward RTA furniture have become more favourable. The study also shows that these perceptions and attitudes form the basis for consumers' buying behaviour. This suggests that both RTA and assembled furniture marketers and manufacturers could benefit from a better understanding of consumer views. As a result, specific advertising messages and other promotional efforts can be designed to appeal more effectively to a manufacturer's or retailer's particular customer base.

1.0. EXECUTIVE SUMMARY

1.1. Growth of RTA Furniture

1.2. Methods

1.3. Results
- Retailing of RTA Furniture
- Consumers' Evaluation of Their Last RTA Purchase
- RTA Purchased Recently Was Better
- West Bought More RTA
- Demographics Influenced RTA Purchases
- General Attitudes
- Consumer Attitudes Improved
- Print Advertising Dominated
- Real Wood Most Preferred
- Consumer Attitude Groups Identified
- Three Retail Attitude Groups
- RTA vs. Assembled Furniture Attitude Groups

1.4. Conclusion

Vance Research Services, 1991. WOOD AND WOOD PRODUCTS' - PROJECT 1991 SURVEY. Prepared for: WOOD AND WOOD PRODUCTS. 57p. Lincolnshire, IL. Available for a fee from Vance Research Services.

General Overview:

The data presented in this report concentrates on providing its reader with important raw material, machinery and supply trends as they apply to WOOD AND WOOD PRODUCTS' subscribers. Responses are broken out by business category, number of employees, geographic regional location, and, of course, in aggregate for all types of business operations represented..

The data in this report was obtained through a personalized mail survey. A sample of subscribers was selected from the following business and industry files on WOOD's circulation base:

- Furniture & Fixtures, Seating & Cabinet Manufacturers
- Lumber and Wood Products, Except Furniture
- Services

Report Contents:

3.3. Materials/Supplies

- 3.3.1. Anticipated Expenditures for Materials and Supplies in 1990
- 3.3.2. Anticipated Expenditures for Hardware and Fastening Supplies in 1990
- 3.3.3. Three Top Used Hardwood Species
- 3.3.4. Three Top Used Softwood Species
- 3.3.5. Panel Usage
- 3.3.6. Surface Finishing Methods Used/Anticipate Using
- 3.3.7. Decorative Overlays/Edgebanding Materials Used/Anticipate Using
- 3.3.8. Glue Systems Used/Anticipate Using

3.4. Production/Manufacturing

- 3.4.1. Percentage of Total Finished Wood Components Are/Will Be Produced Outside Firm
- 3.4.2. Percentage of Finished Wood Products Which Are Custom Versus Stock Orders
- 3.4.3. RTA Furniture/Cabinets

3.5. Perceived Usefulness of Various Information Sources

3.6. Perceived Industry Concerns

4.0. Project 1990 and Project 1991 Data Comparisons

Williston, Ed M., 1991. Value-Added Wood Products - Manufacturing and Marketing Strategies. Miller Freeman, Inc. 218p, San Francisco.

General Overview:

This book presents a generalized overview of the opportunities that exist in value-added manufacturing. It outlines topics to consider when deciding what to produce and where to produce it, and emphasizes the importance of understanding product markets.

Ch 1 - Developing Potential Product Ideas

Ch 2 - Readily Available, Low-Cost Products

Ch 3 - Selecting Promising Value-Added Candidates

Ch 4 - Elements of a Business Specification

- refers to analyzing all aspects of the product including suitable raw materials, markets, uses and requirements, methods of manufacture, and financial costs and benefits.

Ch 5 - Market Analysis and Planning

- must consider market's size, location, penetrability, building trends and the economic environment of the time.

Ch 6 - Product Use Requirements

Ch 7 - Product Properties

Ch 8 - Log Yard and Deck Opportunities

Ch 9 - Adding Value in the Woods, on the Deck, and at the Headrig

Ch 10 - Adding Value During Resawing, Edging, Trimming, and Sorting

Ch 11 - Low and Medium Capital Cost Business

Ch 12 - Higher Capital Cost Value-Added Products

Ch 13 - Glued-Up Solid Wood and Composite Products

Ch 14 - Surfacing, Finishing, Veneering, Laminating, Moulding

Ch 15 - Products from Particles & Wood Fibre

Ch 16 - Training and Motivation

Appendix A - Market and Product Information Sources

Appendix B - Major Model Building Codes (U.S.)

Willson, B., 1987. ALS Dimension Lumber for Japan, Report #2 of a Series - Market Research Japan. Council of Forest Industries of British Columbia. 20p, Vancouver, B.C.

General Overview:

This report reviews the Washington and Oregon state ALS dimension lumber industry focusing on the export market to Japan. In particular, it analyzes the forest resource and sawmilling base in these states and the potential for further supply of stock. Also, the current distribution methods of ALS dimension lumber in Japan are outlined. Some of the effects of the export tax (lumber exported from Canada to the U.S.) and the effects of the tariff (lumber entering Japan) on the current situation are reviewed.

1.0. INDUSTRY BACKGROUND

1.1. Component Companies
- Provide intermediary services for the home building companies.

1.2. Importers of Dimension Lumber
- The original general trading companies have evolved into more specialized trading companies which are more integrated in terms of production and sales efforts.

1.3. History of Importing Dimension Lumber
- Volumes and species imported from British Columbia and West Coast of U.S.

2.0. ALS DIMENSION LUMBER IN JAPAN

2.1. Distribution
- Distribution of ALS dimension lumber in Japan - names of Importers, Component Companies, and Builders.

3.0. LUMBER PRODUCTION IN WASHINGTON AND OREGON STATES

3.1. The Forest Resource
3.2. The Sawmilling Industry
3.3. Mills Cutting for Japan
3.4. Export J-Grade
3.5. U.S. Capability to Supply J-Grade
3.6. The K.D. Factor and Finishing

4.0. TAXES AND TARIFFS

4.1. Export Tax Applied to Canadian Lumber Entering the United States
4.2. Import Tariffs on Whitewoods Entering Japan

List of References
Appendix I - Map of Washington and Oregon States
Appendix II - U.S. Producers of K.D. Hemlock Lumber in 1986

Willson, B., 1989. The Housing Market in Japan With Emphasis on Developing Small Structural Sizes, Report #5 - Market Research Japan. Council of Forest Industries of British Columbia. 63p, Vancouver, B.C.

General Overview:

This study is an overview of the Japanese housing and building materials market. The objective is to develop opportunities for small structural products used in the housing industry in Japan. It analyzes: the housing market; current imports into Japan of lumber products; Japanese size categories and measuring systems; small structural products; and development of cutting systems for small products.

The report includes tables on: standard products & sizes; the measuring system in Japan; remanufacturers; prefab, precut, and treated lumber producers.

1.0. THE HOUSING MARKET

- The challenge will be for companies to diversify their types of product lines into a broader range of market areas and areas which are showing more growth.

2.0. THE BUILDING MATERIALS MARKET

- Looks at the finished and semi-finished product market and the types of stock which are imported.

2.1. Product Balance
2.2. Evolution of Products from B.C.

3.0. THE JAPANESE SYSTEM OF MEASUREMENT

- The "Shakkan" System is still used parallel to metric in many areas such as the forest industry.

3.1. Width and Thickness
3.2. Length
3.3. Area
3.4. Volume
3.5. The Metric System

4.0. TRADITIONAL PRODUCTS AND SIZES

- The components used in a traditional Japanese house can be broken into four categories: Baby Squares, Beams, Clear Finishings, and Smaller Structural Sizes.

5.0. SMALLER STRUCTURAL SIZES

- The small structural sizes make up the largest component area in the house.

5.1. Taruki (Roof Rafter)
5.2. Yanedaruki ("Roof Taruki")
5.3. Neda and Sujikai (2nd-Fl Floor Joists & Wall Bracing)
5.4. Mabashira (Japanese Stud)
5.5. Dobuchi, Nobuchi (Separating Wall and Hanging Roof) ("Mansion Taruki")

6.0. THE STRUCTURAL BLANK MARKET

- Japanese remanufacturing plants sometimes indicate that they would like to have blanks in widths that are suitable for the exact remanufacture of the products they are producing.

6.1. Product Quality
6.2. Blank Products vs. Finished Products

7.0. EVOLUTION OF A MAIN CUTTING PROGRAM

- This section examines some of the techniques for reducing the complexity and improving the quality and length balance in the sawmill as we progress towards more smaller structural finished products for this market.

7.1. Woods Bucking and Log Sorting
  - Log Selection and Bucking
  - Log Sorting
7.2. Mill Bucking and Sorting
7.3. The Head Saw
7.4. Flitch Breakdown (Reman Saw 1)
7.5. Trimming
7.6. Remanufacturing (Reman Saw 2)
7.7. Breakdown of Structural Blanks (Reman Saws 3 and/or 4)
7.8. Planing
7.9. Product Categories
7.10. Species and Regional Considerations

8.0. REMANUFACTURING UTILITY STOCK

9.0. CUSTOM CUTTING IN THE INTERIOR

10.0. MARKET OPPORTUNITIES

List of Appendices

Woodbridge, Reed and Associates Ltd., 1983. Achieving Higher Market Values from Canada's Timber Resources - The Nordic Challenge. A Submission to the Royal Commission on the Economic Union and Development Prospects for Canada. 44p, Vancouver, British Columbia.

General Overview:

The purpose of this submission is to draw the attention of the Commission to one specific aspect of industrial strategy; namely, the urgent need to examine, on a comparative basis, the level of investment in new manufacturing plant and equipment.

This submission addresses some of the structural changes which are taking place in the Canadian forest products industry. It points out that, as a result of the 1981-83 recession, many recently initiated programs of capital expenditures for modernization and upgrading have had to be deferred. Moreover, that during the past ten years, at least some of Canada's competitors have moved strongly ahead of Canada in the following areas:

a. capital investment in manufacturing per unit of timber consumed, and

b. the amount of value-added through manufacture achieved per unit of timber consumed.

A number of joint private-public sector initiatives undertaken at the national level could lead to an industrial strategy framework for Canada's forest products industry. In this regard, this submission makes two recommendations.

Firstly, it recommends that close attention should be paid to the industrial strategies and fiscal policies initiated by Canada's competitors, particularly those in Sweden and Finland. These are countries which, like Canada, have fairly limited domestic markets and are strongly export oriented. They experienced earlier some of the structural problems which today face the Canadian industry. Their solutions may not be completely applicable to Canada's situation. But there are close parallels in many respects.

Secondly, it is recommended that, in view of the anticipated requirements for significant private sector capital expenditures by the Canadian forest industry, there is a need for clear, unequivocal, fiscal policies. These are essential to ensure the following:

a. Canadian companies do not defer much needed capital investment, and

b. in particular, that they are encouraged to adopt, where and when appropriate, improved technologies leading to higher value-added manufacturing and processing per unit of timber consumed.

Woodbridge, Reed and Associates Ltd., 1984. British Columbia's Forest Products Industry -- Constraints to Growth. Prepared for: The Government of Canada, Ministry of State for Economic and Regional Development. 96p, Vancouver, British Columbia.

General Overview:

This Consultants' principal theme in this report is that the B.C. forest products industry has become "locked-in" to a product-mix which reflects timber resource and processing technology superiorities which no longer exist. An upgrading of the province's product-mix is felt to be essential.

Throughout the report, the intention has been to focus on constraints to industrial development. Specific market opportunities have not been addressed in detail. Rather, the intention has been to provide a viewpoint on strategic directions for product development in the future. This is provided as a basis for further discussion by the industry.

The formal objectives of the study are to:

1. Review strategic developments in the forest products industry, with particular reference to B.C.

2. Identify possible future directions of and constraints to, growth in the context of B.C.'s resources and market opportunities.

3. Discuss any strategy and policy changes required at the senior government level to ensure the continuing development and health of the B.C. industry.

Sections:

1.0. Assessment of the B.C. Industry's Current Situation

2.0. Forest Resources and Timber Supply

3.0. Softwood Lumber and Panel Products

4.0. Pulp and Paper

5.0. Opportunities for Strategy Initiatives in the B.C. Forest Products Industry

Woodbridge, Reed & Associates, a division of HA Simons Ltd., 1988. Canada's Forest Industry - The Next Twenty Years: Prospects and Priorities, Volume IV: Wood Products. Prepared for: Government of Canada; Canadian Forestry Service; Industry, Trade and Technology Directorate, Economics Branch, Ottawa. 135p.

General Overview:

This study of the Canadian Forest Products Sector was commissioned by the Canadian Forestry Service. The purpose of the study is to assess the development potential for the sector. The study assesses the demand outlook for existing and potential forest products, the current and potential competitive position of the various sub-sectors of the industry in Canada and the available resources.

The full report on this study comprises six volumes. The contents of the full report are outlined as follows:

Volume I:	Strategic Analysis
Volume II:	World Demand - Supply
Volume III:	Pulp and Paper
Volume IV:	Wood Products
Volume V:	Fibre Assumptions
Volume VI:	Cost Projections

Volume IV details the market outlook and competitive position for wood products. The product/market analysis culminates in the definition of a national as well as a set of regional industrial development scenarios. In view of the changes taking place in the environment in which the wood products sector operates, scenarios have been developed for both the short term (1995) and long term (2010).

It is designed to provide "stand alone" analyses for lumber and panel products separately. There is, however, some significant overlap in terms of the markets. For example, the technological changes in residential construction in Japan have an impact both on lumber and structural panel products. Consequently, in order to avoid excessive repetition, there are some cross references between the two main sections.

The study's approach begins with an overview of the significant issues, findings and conclusions. This overview is followed by an analysis of the major markets that are of potential significance to Canada. The analysis of the potential demand leads to a discussion of Canada's competitive position relative to other supply sources. These sources and their outlook are analyzed in Volume II.

The overall potential for Canada is then analyzed in detail by region and in relation to the industry and fibre resources in the region. To some extent, there is a degree of commonality across the regions, e.g., in terms of lumber to be sold to the US, or the specialty options open to the smaller, less efficient operations.

There are, however, significant differences due to geographic location and the quality of fibre. The Japanese demand for hemlock component stock, for example, is of little relevance to Ontario (apart from the effect of displacing fibre that might otherwise compete with Ontario on the US market).

Though for panel products there is little constraint expected as a result of raw material supply, there are expected to be some limitations relative to lumber. Lumber is a mature product and growth overall is not dramatic. There is, nevertheless, growth and this growth results in a market-driven opportunity for Canada. The regional analyses assess the extent to which each region has the necessary suitable fibre to satisfy the market opportunities.

This volume takes the analysis only to the stage of a development scenario for each product sector. The integration of the various products into a national multi-product development scenario is presented in Volume I of this study.

I. LUMBER

1.0. Overview

- 1.1. Size and Nature of the Market
- 1.2. Demand Outlook

2.0. Market Analysis

- 2.1. Canada
- 2.2. US
- 2.3. Europe
- 2.4. Asia-Pacific
  - Japan
  - Australia
  - China
  - Taiwan
  - South Korea

3.0. Competitive Position

4.0. Overall Market Opportunity

5.0. Implications for Canadian Regions

5.1. General Trends

6.0. Regional Implications

6.1. BC Coast
6.2. BC Interior
6.3. Prairies
6.4. Ontario
6.5. Quebec
6.6. Atlantic

7.0. Total Canada

II. PANEL PRODUCTS

1.0. Overview

2.0. Size and Nature of the Market

3.0. Demand Outlook

4.0. Market Analysis

4.1. North America
- US
- Canada

4.2. Japan
4.3. Western Europe

5.0. Competitive Position

5.1. Softwood Plywood
5.2. Waferboard/OSB
5.3. LVL
5.4. Particleboard
5.5. MDF
5.6. Hardboard

6.0. Regional Implications

6.1. BC Coast
6.2. BC Interior
6.3. Prairies
6.4. Ontario
6.5. Quebec
6.6. Atlantic

7.0. Total Canada

Woodbridge, Reed and Associates, 1988. The Status and Direction of the Lumber Remanufacturing Sector in British Columbia. Prepared for: Pacific Forestry Centre, Canadian Forestry Service, Victoria, B.C. 18p, Vancouver, British Columbia.

The following analysis addresses the remanufacturing sector as an important and integral part of the activity that aims at increasing the value of, and profit to be made from, the B.C. forest resource.

The report is an overview of the problems and opportunities facing the lumber remanufacturing sector in B.C. It uses statistical information to describe the significance of the sector to the economy, and then goes on to explain the current industry situation and future outlook.

Every previous analysis of the remanufacturing sector has spent some time wrestling with definitions and each has produced something a little different. Rather than develop yet another definition, this report simply assumes that the remanufacturing sector has some form of lumber as a raw material and produces a product that will usually be subject to some further processing activity prior to final use.

Topics discussed include:

1. Scale of Importance and Trends in the Remanufacturing Sector
   - Estimation of Scale of Remanufacturing in B.C.
   - Relative Scale, Remanufacturing Compared to Primary Lumber Sector in B.C.
2. Remanufacturing Representation in B.C.
3. State of Technological Evolution of the Reman Sector
4. The Market Niches for the Remanufacturing Sector
5. Real Threat for Wood's Traditional Markets
6. The Problems Facing the Remanufacturing Sector
   - Raw Material
   - Investment
   - Taxation
   - Technical Skills

7. Expansion Opportunities

   - Raw Material Availability
   - Market Promotion and Product Development
   - Research, Development and Training

8. Future Directions

Appendix A: Definitions in Current Use

Appendix B: Value of Remanufactured Goods Produced

Appendix C: Remanufacturing Employment

Appendix D: Number of Remanufacturing Establishments

Appendix E: Listing of Remanufactured Wood Products

Appendix F: Typical Remanufacturing Processes/Custom Services