UBC Social Ecological Economic Development Studies (SEEDS) Student Report

Marketing Strategy for Small Diameter Douglas-fir

Newsha Ashari, Jamie Mak

University of British Columbia

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submitted to

Dr. Robert Kozak

by

Newsha Ashari

Jamie Mak

Wood 465

The University of British Columbia

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Executive Summary

"Marketing Strategy for Small Diameter Douglas-fir"

by Newsha Ashari and Jamie Mak

This report is an investigation into the marketing strategies for small diameter Douglas-fir logs. The Cariboo Forest Region in British Columbia is overcrowded with small diameter Douglas-fir trees. This poses several environmental problems in the region, which includes the reduction in large diameter trees and mule deer populations, and an increased probability of serious forest fires. Through commercial thinning, there will be access to the small diameter trees. There are vast product opportunities to utilize the small diameter Douglas-fir logs. Due to the softwood lumber dispute and high logging costs, the highest and best use of the resources is value-added products. After analyzing the advantages and disadvantages of potential value-added products, solid Douglas-fir RTA furniture has the best potential to enter the market and make a profit. The target markets for the furniture are retailers – aiming at middle to low class consumers. The product line included tables, chairs, entertainment centres, desks, bookcases, hutches and dressers; these products will be showcased and promoted at trade shows and in catalogues.

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1.0 Introduction

Over the past century, interior British Columbia's forests have changed. A vast area of forests has changed significantly for the worse. Changes in the land use and settlement patterns have reduced the frequency of forest fires, which is a natural occurrence for forest regeneration. The shortage of forest fires has produced forests with overcrowded stands of small diameter trees and lack of larger trees. The overcrowding of trees is potential for serious fire hazards. These fires can spread very fast and have devastating consequences to our landscapes and watersheds (LeVan-Green and Livingston, 2001). The existence of small diameter trees creates moisture limited forest; therefore, many small trees compete for water and food with large trees, thus reducing the vigour of large trees (Kozak, 2003).

The region under the microscope in British Columbia is the Cariboo Forest Region, which is saturated with small diameter Douglas-fir. In this region, mule deer winter ranges cover more than a quarter of a billion hectares. The mule deer are dependent on the large Douglas-fir trees for food and cover. Thus, managers have to make sure that there is enough supply of large trees for the deer. In order to do so, management plans, such as commercial thinning, will provide enhanced mule deer habitat in the future access to small diameter timber. In addition, the condition of forests will be healthier with larger trees growing and reduced forest fires.

There is a vast range of product opportunities for small diameter Douglas-fir. These trees are approximately 60 years old. The wood possesses small tight knots, and tight grain structure, i.e. a large number of rings per inch, making the wood highly dense and strong, idle for high quality products. By exploring these product opportunities, the raw material will be best utilized.

2.0 Product Opportunities

A hierarchy of products for small diameter raw material in general includes value-added, traditional and residue products. These products will be explored by discussing their advantages and disadvantages in the ever changing forest industry.

2.1 Value-added Products

Value-added products range from furniture, cabinets, engineered building products, factory-build or prefabricated structures, and millwork. Refer to Appendix A for a list of all the value-added companies in BC currently registered with BC Wood (www.bcwood.com/).

2.1.1 Furniture

Products considered to be furniture are household, office, knock-down or ready-to-assemble (RTA), outdoor and shelving. Positive sign of producing furniture is that the market is growing. Also, an advantage of making furniture out of the small diameter logs is the high quality of the wood. Structurally, the wood is high in strength and sound. However, the wood retrieved from the log is low. The widths of wood only range from two to five inches making it difficult to produce a product, yet possible. Whole log furniture is another option to consider. Waste would be minimal since utilization of the log is near 100%. However, this product may be difficult to attract customers because of its aesthetics and bulkiness.

2.1.2 Cabinets

Cabinet producers are those that manufacture the following: kitchen cabinets, bath vanities, home entertainment and case goods. Manufacturing cabinets out of solid Douglas-fir has a possible potential market since the majority of cabinet manufacturers make their cabinets out of particleboard and MDF with laminated veneer. However, kitchen cabinet components made entirely out of solid wood will be more expensive than composites. Therefore competing with these low cost manufacturers would be an issue to enter into this market. There are still customers that will pay extra money for a higher quality product.

2.1.3 Engineered Building Products

The production and consumption of engineered wood products have increased over the past decades. In this time these products have experienced rapid growth and gained acceptance in the marketplace. Such products include floor and roof trusses, glulam, laminated veneer lumber, and I-beam/joists. According to ECE/FAO Products Annual Markets Reviews, 2000-2001, wooden I-beams have gained a significant acceptance in North American residential construction. North American glulam production increased by 14%, where as laminated veneer lumber declined by 6% in 2000. Market forecast in the next five years seems to be promising due to the housing boom (See Appendix B). Douglas-fir engineering wood products enable the ability to control the strength of the overall product. However, the fact that these logs are very small in diameter might not be feasible to make such products. Moreover, there are many existing manufacturers that produce engineering wood products; therefore, competition would be very high in this industry – making it difficult to penetrate the market.

2.1.4 Factory-build or Prefabricated Structures

Log homes, timber-framed structures, and prefabricated home structures are considered in this category. This is a growing market with over a hundred companies in BC alone. Due to the small diameter of the logs, this may not be the best option for the use of the raw material. Majority of log homes are made of large diameter logs. Another problem would be competing with already existing companies that are making log homes and timber structures out of larger diameter logs.

2.1.5 Millwork

Millwork includes products such as mouldings, doors, windows, and staircases to name a few. Demand for these products is growing due to the housing boom in the U.S. Figure 1 below shows increase Canadian exports of these products over the last five years. Home builders and manufactured home companies would be possible target markets.

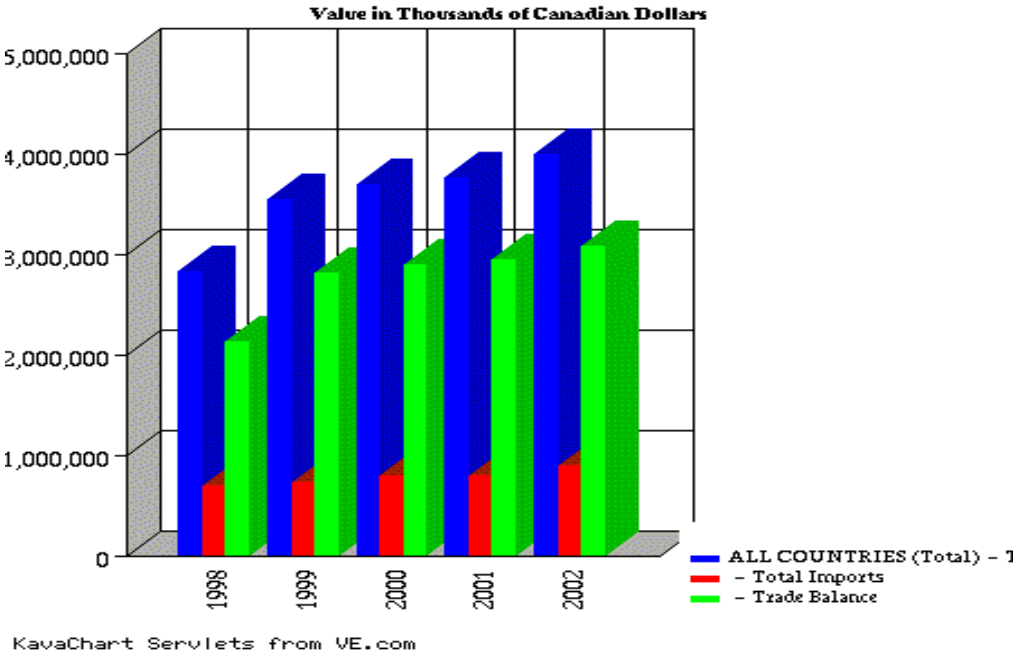

Figure 1. *Canadian Millwork Products' Trade Balance*

Source: Statistics Canada

The quality of the raw material makes it an excellent choice for millwork products. But due to the small diameter Douglas-fir logs, knots may affect the finishing quality of these products.

2.2 Traditional Products

On average, the top log diameter is 10.5 cm (15 cm at breast height). These could then be peeled to be used as poles or posts. Conversely, logs may also be exported. Other alternatives are structural and nonstructural lumber and pulp chips. World trade of secondary processed wood (value-added) products is expanding at a faster rate than trade in primary wood products. More over, the value in wooden furniture ($29 billion) exceeds that of sawnwood ($25 billion) and wood-based panels ($16 billion) according to ECE/FAO Products Annual Markets Reviews, 2000-2001.

2.2.1 Structural Roundwood

Advantages of small diameter logs that are 4-6 inch DBH are that they are less susceptible to warp, dimensionally stable, its natural taper makes it suitable for use in column applications, and the process costs are low. Since these logs are small in diameter, utilizing the required size for column and beams for heavy duty application is not very feasible but could be possible for light duty applications. However, they are more susceptible to splitting and cracking when used in highway structures. Also, compared to steel applications, roundwood is less durable and more difficult to install. Therefore, in order for roundwood to compete with steel in this market, costs must be lower (Paun and Jackson, 2000).

2.2.2 Dimension and Nondimension Softwood Lumber

To process small diameter logs, only high-speed sawmills would equal or exceed harvest and delivery costs. Any other conventional sawmill or studmill would result in a loss (Wagner et al., 2000). According to a grade recover study by E.C. Lowell and D.W Green, grade recover as Select Structural for Douglas-fir in the Pacific Northwest was at 47%. This indicated that volume and grade recoveries for lumber sawn from small diameter trees were comparable to larger trees. In addition, machine grading appeared to offer an economic benefit to lumber sawn from smaller trees (Funck and Brunner, 2000).

Small diameter D-fir logs can be used for non-dimensional lumber to make window blanks. The utilized lumber has to be cut into three pieces and then glued together to make very stable products. Because of the ongoing softwood lumber dispute between Canada and the U.S., the market has been on a decline as shown in Figure 2 below. Canadian softwood lumber exports have decreased from $12.8 billion (1999) to $10.4 billion (2002) from Statistics Canada.

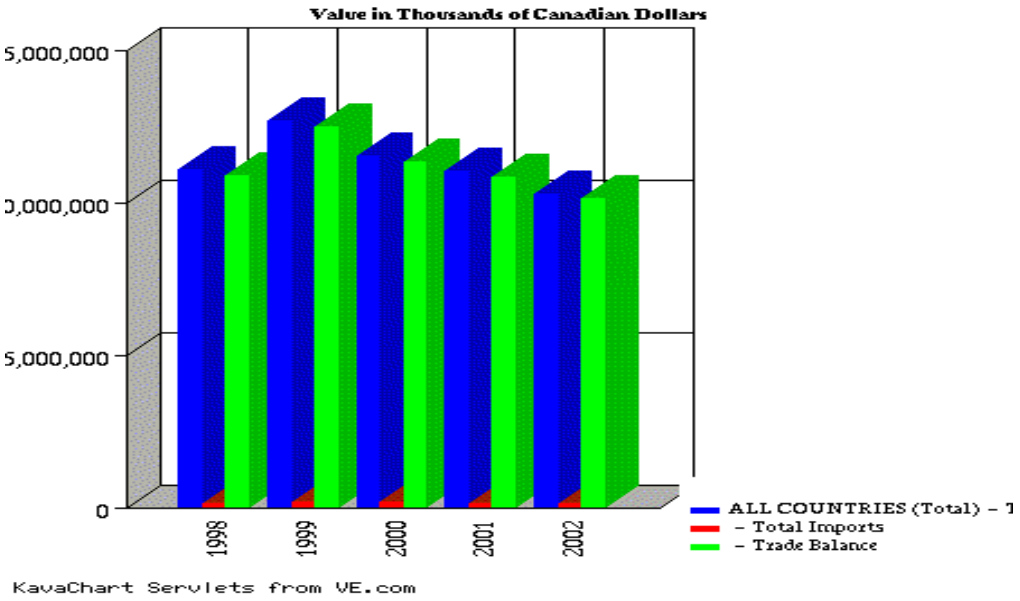

Figure 2. *Canadian Softwood Trade Balance*

Source: Statistics Canada

2.2.3 Pulp Chips

According to a report by Susan LeVan-Green and Jean Livingston, pulp chips will remain a viable use, but the cost of producing and transporting then to distant pulp mills makes it uneconomical. There have been some recent studies that shows small diameter Douglas-fir with kraft pulping procedures have behaved similarly to kraft pulp made from traditional sawmill residue chips. However, there may be problems if certain species are mixed with traditional sawmill residues.

2.3 Residue Products

As a low-value product, biomass energy, pulp, and composting are possible alternatives for small diameter logs. The current utilization of the Douglas-fir logs is for energy uses. However, the costs of processing the logs in the forest exceed the profit of wood fuel. Harvesting of the logs and shipping to the mill costs $200 per cubic meter alone. Pulp quality of Douglas-fir to make paper is rather low, i.e. brown paper bags. Using wood for residue uses in its simplest form is often the least costly approach, but may not be the highest and best use of the resources.

3.0 Furniture Industry

An overview of the Canadian furniture industry over the last decade is provided by Strategis, Canada's Business and Consumer Website. In 2001, Canada exported $7.3 billion worth of furniture, 97% of that to the U.S., Canada's single largest export market. Between 1992 and 2001, exports of Canadian furniture increased by 383% or equivalently grew at a compound average annual growth of 17.05%. Currently, Canada is the second largest exporter of furniture in the world. A concern is the growing furniture market in China.

Ontario and Quebec combined account for about 80% of the industry. BC's production and market for furniture is relatively small compared to the two provinces. In BC alone, the largest market for wood furniture for offices and residential is the U.S. The table below shows the distribution of BC wood furniture exports to the top ten countries around the world over the past five years.

	1998	1999	2000	2001	2002
U.S.	121,933,381	172,553,847	204,979,186	210,706,010	223,790,926
Japan	8,685,321	9,726,246	6,796,662	4,188,060	5,389,849
China	353,886	90,384	304,158	215,871	472,307
Bermuda	--	--	39,985	107,020	353,147
Taiwan	157,499	351,321	132,244	105,556	313,345
Hong Kong	107,672	528,103	379,580	605,510	274,383
Malaysia	141,174	--	94	--	180,514
U.K.	379,344	576,011	577,505	214,885	172,887
South Korea	17,645	20,171	247,521	113,804	167,942
Singapore	156,027	16,028	27,367	32,693	139,683
SUB-TOTAL	131,931,949	183,862,111	213,484,302	216,289,409	231,254,983
OTHERS	961,774	1,476,005	595,191	923,265	626,313
TOTAL (ALL COUNTRIES)	132,893,723	185,338,116	214,079,493	217,212,674	231,881,296

Values in Canadian dollars
Source of data: Statistics Canada

Table 1. BC Wood Furniture Exports from 1998-2002

Source: Statistics Canada

There is certainly a huge opportunity for a new company to get into an ever growing industry, especially those located in BC. Companies should take advantage of the raw material available in the province and make BC a larger furniture manufacturer.

The term furniture is somewhat broad. When entering into this industry, it will be important to know what type of furniture to produce. Furniture can be further broken down to household and office furniture, wood kitchen cabinets and counter tops, and other manufactured products, such as blinds and shades. Figure 3 below shows how Canadian furniture production is broken down.

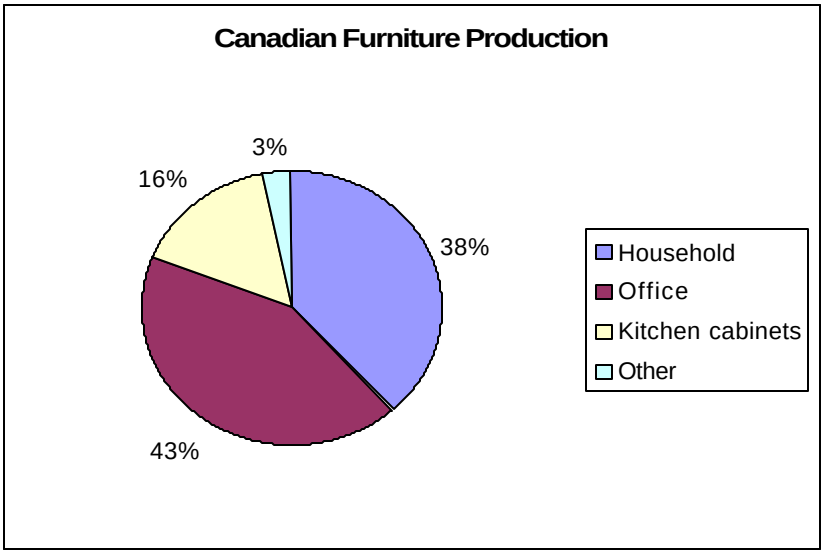

Figure 3. *Break-down of Furniture Production*

RTA furniture has been growing in excess of 5% annually since 1977 with forecasted growth of more than 10% annually over the next couple of years (Vlosky et al., 2001). The RTA industry in North America is estimated to be in excess of three billion in retail sales. In only a few short years, the RTA segment has gone from second-class citizen to being looked up to as the fastest growing segment of the furniture industry in North America, representing upwards of 20% of total wood furniture sales according to Ameriwood Industries Inc.

4.0 Ready-to-Assemble Furniture

Based on the vast market and product opportunities that have been explored for small diameter Douglas-fir, a recommended and viable business opportunity for UBC / Alex Fraser Research Forest is to manufacture and market RTA furniture. Of the RTA furniture manufacturers located in Canada, none of which are currently producing solid Douglas-fir RTA furniture (See Appendix C). In British Columbia, only Canwood Furniture Inc. is producing solid wood RTA, which is made entirely out of solid Lodgepole pine. Also, there is not a single company, in almost all of North America that controls its harvesting to the manufacturing of a value-added product such as furniture. In Europe for instance, this is not a unique type of operation; there is no reason why such an operation can occur in North America. This allows a company to be in control throughout its entire operation. Because of the excellent wood properties of these small diameter logs, solid Douglas-fir RTA furniture would be high in quality and aesthetically pleasing. In addition, this opportunity will help Canada move away from a commodity producer to a more innovative, value-added producer. This will hopefully make Canada more competitive in the global market, especially in the forest industry (Porter and Martin, 2000).

4.1 Manufacturing

The manufacturing plant would be based in Williams Lake where it will be close to the raw materials. The small diameter logs are to be debarked and processed. The strips of wood would then be dried to a moisture content of 8-9%, ensuring that all furniture is resistant to cracking, checking, and warping. From experiments recently performed, strips of only two to four inches wide were utilized from the log. The widths of these strips or lamells are ideal because a group

of lamells are then glued-up together (as shown in Figure 4) in a radio frequency laminator to produce main furniture components, such as gables or table tops.

Figure 4. *Panel Made from Glued-up Lamells*

Since the diameter of the logs is relatively small, the production of lamells is ideal for maximizing the lumber recover factor of a log. All waste can be converted into biomass for energy to power the facility. A drilling or CNC machine would then produce the holes needed for dowels and other fasteners to accommodate the European 32mm system. This will make every piece of furniture easy to assemble for customers. Lastly, all furniture is sent through a lacquering line where a finish is applied for a durable surface and an aesthetically pleasing piece of furniture.

4.2 Marketing Strategy

To determine how viable this business opportunity will be, the products' target markets, trends, and the marketing mix, which includes the product, place, promotion, and price (four P's of Marketing), are to be investigated.

4.2.1 Target Markets

There is a small niche for solid RTA furniture. So, who will buy these products? Furniture will be solely targeted at retailers, which includes small "mom's and pop's" stores and large department stores in large urban populations. Middle to low income consumers are expected to purchase these products because they are affordable. In Canada purchasing decisions regarding furniture are usually made by women who tend to be sensitive to price and value; discriminating in their tastes; and often individualistic in their choice of styles (Patlan and Rahman, 1999).

4.2.2 Marketing Mix

To provide the customers with their needs and wants, there are controllable variables. First variable is product. Second is place which deals with the distribution of the product, i.e. finding distribution channels. Next is promotion of the product followed by pricing.

4.2.2.1 Product

The products produced offer "the total product". High quality is guaranteed when this Douglas-fir RTA furniture is purchased, since it will be checked by ISO certification. To set this company apart from competitors will be the design, quality, and range of furniture. The ranges of furniture will suite the current lifestyles and values. Included in the product line are unique designs of tables, chairs, entertainment centres, desks, bookcases, hutches and dressers. An example of a product list is shown in the table below.

Residential RTA Furniture	Percent of Production	Average Price Point
Home entertainment furniture	42%	$ 295
Bedroom furniture	18%	$ 139
Bookcases/wall units	14%	$ 99
Storage units	12%	$ 100
Tables	7%	$ 126
Other	7%	$ 108
Office RTA Furniture	**Percent of Production**	**Average Price Point**
Workstations	31%	$ 404
Desks	21%	$ 190
Filing/storage	18%	$ 135
Credenzas/hutches	15%	$ 169
Bookcases	12%	$ 92
Other	3%	$ 159

Table 2. *Percentage of Production and Average Prices of Residential and Office RTA Furniture*
Source: http://www.rnr.lsu.edu/lfpl/publication/papers/wp49.pdf

4.2.2.2 Place

The furniture will be sold to intermediaries. Intensity of distribution will be partly exclusive and intensive. Channel of ownership is vertically integrated, where the company controls all operations from the forest to final product. The intermediaries will be merchants, who will take title of the products to be sold at wholesalers and retailers. Local retailers in the Cariboo region as will make up the majority of the market, where as larger furniture retailers, such The Brick Warehouse Corporation or Hudson's Bay Company, will make up 20%. Market for the furniture will also include exports to stores in the U.S. Figure 5 below is a study done by Louisiana State University in 2001 showing the distribution channel of RTA furniture used in 1999.

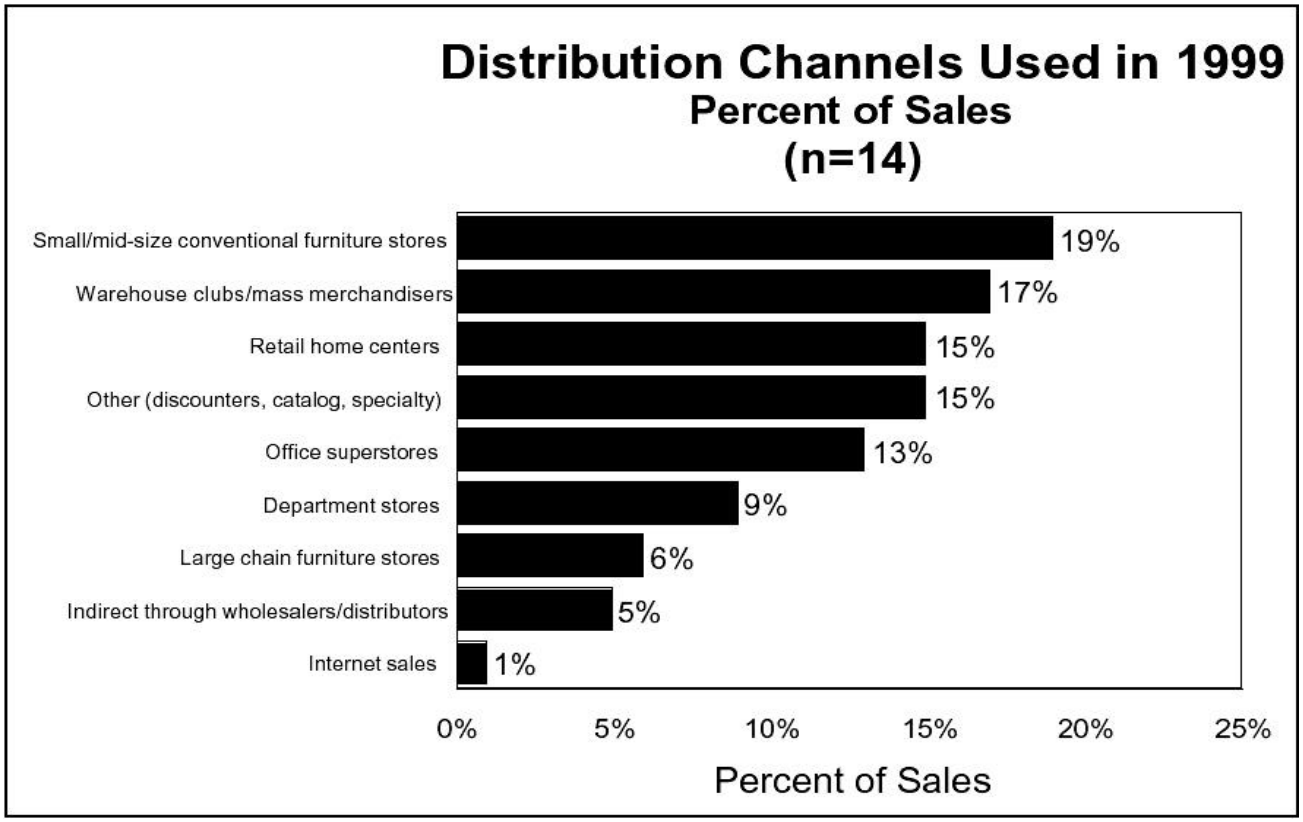

Figure 5. *Distribution Channels Used in 1999*

Source: http://www.rnr.lsu.edu/lfpl/publication/papers/wp49.pdf

All furniture components are nicely packaged in a box, which saves a lot of space, especially during shipping. As for modes of transport, products are delivered by company trucks for close proximity destinations. Rail is used for further destinations, such as retailers located in Eastern Canada or the United States.

4.2.2.3 Promotion

The company will have a showroom to showcase their entire product line. Products will also be exhibited at trade shows, such as the large one at High Point, North Carolina. Approximately 51% of retailers' yearly orders are placed during the six weeks after furniture market showings (Michael and Smith, 1996). It is known that retailers and customers are reluctant to make any purchases without being able to actually see the

physical product (Bennington 1985). Also, catalogues and the Internet are other methods to promote the furniture. A website of the manufacturer should be created to showcase the products and significance of the mule deer problem, as well as the community service it's providing. The mule deer itself should be used to promote the products. For example, with every furniture set sold, a mule deer certificate would be issued stating the Cariboo Forest Region that is benefited.

As for finding potential buyers, i.e. retailers, another effective promotional solution other than trade shows is personal sales. Therefore, there would be a marketing department that would take orders via telephone and build relationships with potential customers.

4.2.2.4 Price

There would be a mark-up in retailer prices of approximately 40-50% on each of the furniture. Wholesale prices will cover the cost needed to manufacture each product. Costs that need to be considered are fixed costs, which includes the cost of land, machines, kilns, etc. There are also variable costs to be to take into account. These costs would include utility and labour costs. Approximately 5% of all furniture manufactured will be defective either because of machining errors or quality of the wood. Instead of throwing the parts out, all insignificant defective parts are to be gathered together to produce a set product and then sold to the staff members or the community for half of the wholesale price. Refer back to Table 2 in Section 4.2.1.1 for average prices ($US) of residential and office RTA furniture.

Canada and U.S.A. are currently in slight recessions. Because of unstable markets and fears of war between nations, people tend hold on to their money and are reluctant to spend. With Douglas-fir RTA furniture, it is high in quality and aesthetically pleasing and also affordable for common consumers.

5.0 Conclusion

By commercial thinning the overcrowded Cariboo Forest Region of small diameter Douglas-fir tree, there will be access to a supply of raw material for many years. A profitable business can be started with this resource supply. If the proposed marketing strategy for solid Douglas-fir RTA furniture is to be implemented then the UBC/Alex Fraser Research Forest can "make something out of nothing." Not only would there be a profitable business in place, but a forest region with large diameter trees and a healthy population of mule deer.

Although there are many product opportunities from small diameter Douglas-fir, each product must be examined to determine if there is a market demand for it and if the market can be penetrated. Once products have been singled-out, target markets, marketing mixed and trends are to be investigated.

The niche target markets for high-end solid Douglas-fir RTA furniture are retailers for middle to low class consumers. The product line includes tables, chairs, entertainment centres, desks, bookcases, hutches and dressers. These high quality products are affordable – marked up to cover manufacturing costs. To promote the product line, these products are showcased at trade shows and advertised in catalogues. All products are delivered on-time and customer satisfaction is quarantined.

In conclusion, even though this report proposes a business manufacturing solid Douglas-fir RTA furniture, by no means is it the only viable business to venture. However, out of the products investigated in this report, RTA furniture shows the best potential to make a profitable business and overcome the problems caused from overcrowding of small diameter trees.

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Appendix A

Number of BC Companies in the following areas:

Cabinet	# of Companies
Bath Vanities	38
Case Goods	17
Commercial/Fixtures	21
Home Entertainment	28
Kitchen Cabinets	42
Other Residential	23
Parts/Components	22
RTA/Knockdown	10
Furniture and Fixtures	
Case Work	6
Contract Fixtures	33
Ergonomic	7
Frames/Parts	24
Gazebos	26
Hospitality	2
Household	70
Knock Down/Ready-To-Assemble	27
Office	40
Other	1
Outdoor/Garden	49
Saunas/Hot Tub Finishings	0
Shelving	33
Factory-build or Pre-Fabricated Structures	
Log Homes/buildings - Handcrafted	52
Log Homes/buildings - Machined	34
Other	1
Panellized Homes/Structures	28
Pre-Cut Garden Sheds	28
Pre-Cut Home Packages	31
Prefabricated Home Structures	1
Timber Frame Structures	48

Engineered Building Products	# of Companies
Floor Trusses	22
Glulam	25
I-Beam/Joists	25
Other	0
Plywood	17
Roof Trusses	25
Structural Composite Lumber	15
Millwork and Finished Products	
Architectural Millwork	53
Exterior Doors	46
Flooring	82
Flush Doors	23
Garage Doors	19
Interior Doors	46
Mouldings/Trim	99
Paneling	77
Staircases	33
Stile & Rail Doors	38
Turnings	17
Wood Windows	35

Source: www.bcwood.com

Appendix B

ANNUAL HOUSING STARTS (1978-2002)

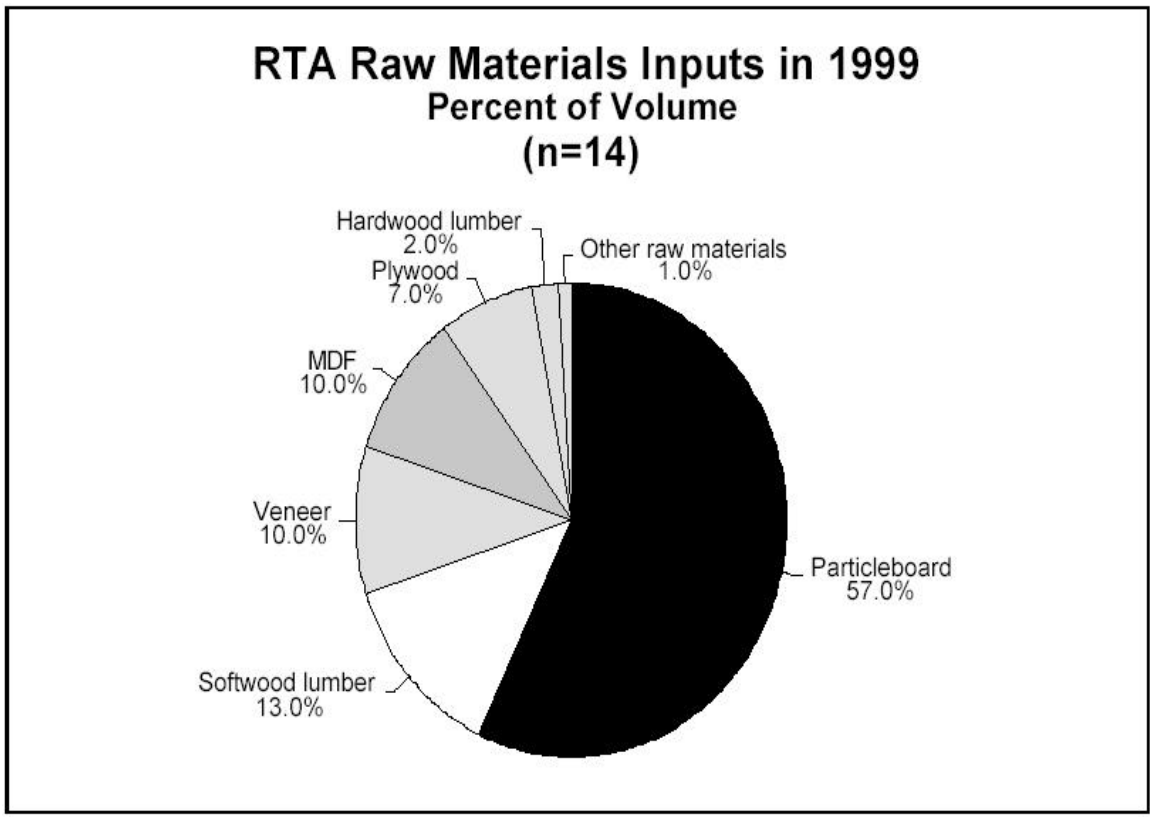
Year	Single-Family	Multifamily	Total
2002 (r)	1,358,900	346,900	1,705,800
2001	1,273,300	329,400	1,602,700
2000	1,230,900	337,800	1,568,700
1999	1,302,500	338,700	1,641,200
1998	1,271,400	345,600	1,617,000
1997	1,133,600	340,400	1,474,000
1996	1,161,000	315,900	1,476,900
1995	1,076,300	277,900	1,354,200
1994	1,198,400	258,600	1,457,000
1993	1,125,600	162,100	1,287,700
1992	1,030,100	169,500	1,199,600
1991	840,400	173,600	1,014,000
1990	894,900	297,700	1,192,600
1989	1,003,400	372,700	1,376,100
1988	1,081,400	406,600	1,488,000
1987	1,146,300	474,300	1,620,600
1986	1,179,500	625,900	1,805,400
1985	1,072,300	669,400	1,741,700
1984	1,084,100	665,300	1,749,400
1983	1,067,500	635,500	1,703,000
1982	662,600	399,600	1,062,200
1981	705,300	378,800	1,084,100
1980	852,100	440,100	1,292,200
1979	1,194,100	550,900	1,745,000
1978	1,433,400	586,900	2,020,300

Source: U.S. Census Bureau

Source: http://www.nahb.org/generic.aspx?sectionID=130&genericContentID=554

Appendix C

Different RTA Raw Material Breakdown:

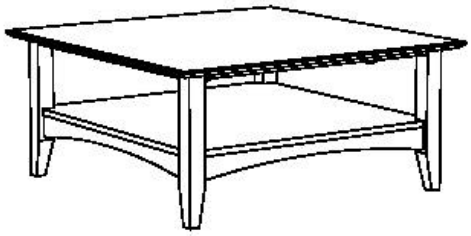


Source: www.rnr.lsu.edu/lfpl/publication/papers/wp49.pdf

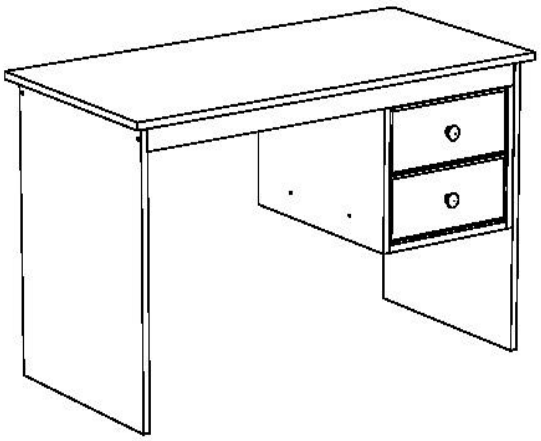
Appendix D

Solid Douglas-Fir RTA Product Line

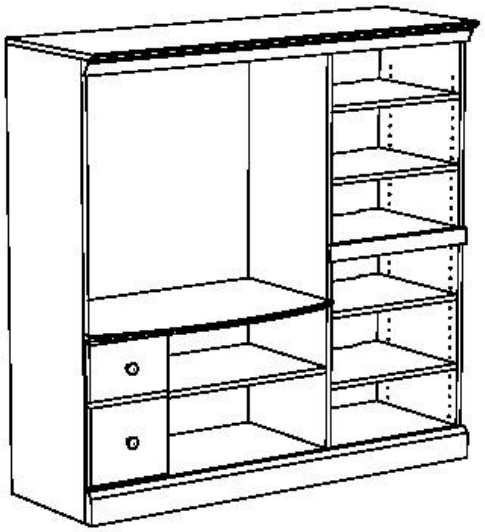
Table



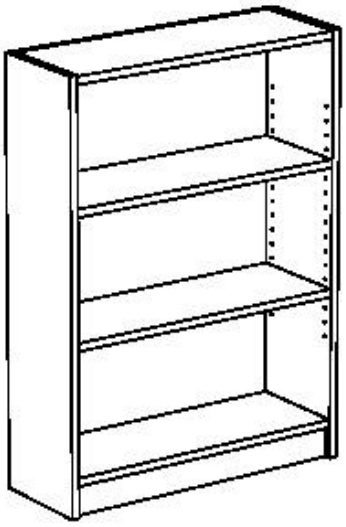
Desk



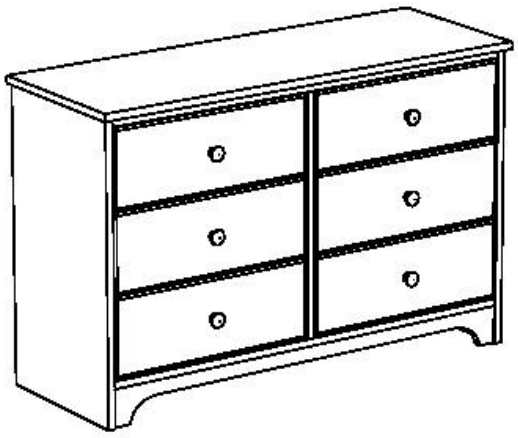
Entertainment Centre



Bookcase



Dresser



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