DEFINING A STRATEGY FOR THE KAMLOOPS PULP MILL TO MITIGATE THE IMPACT OF THE SKILLED TRADES SHORTAGE

By

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ABSTRACT

The Kamloops Pulp Mill uses a low cost strategy to compete in the capital-intensive kraft pulp industry. Attempts to reduce cost structures in the face of increasing global competition have resulted in workforce reductions of more than twenty-five percent in the last eight years.

The Kamloops Pulp Mill's ability to attract and retain qualified skilled tradespeople is impacted by the skilled trades shortage in Western Canada. Skilled tradespeople are the hands-on foundation of effective maintenance and equipment reliability, both essential components for the future success of the operation.

This paper seeks to define a trades strategy for the Kamloops Pulp Mill. The Mill cannot rely on recruiting qualified workers from the existing labour market, so must increase the number of apprenticeships to ensure a future supply of qualified skilled tradespeople.

Keywords: skilled tradespeople; skilled trades shortage; apprenticeships; kraft pulp industry

DEDICATION

To David and Brittnee, for your unwavering support throughout the many, many years of my pursuit of higher education. Thank you for your encouragement and your help.

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GLOSSARY

NBSK	Northern Bleached Softwood Kraft
CEP	Communication, Energy and Paper Workers of Canada
ADMT	Air-dried metric tonnes
PPWC	Pulp and Paper Workers of Canada
C.A.	Collective Agreement
FOB	Freight on Board
ITA	The Industry Authority Act
ITO	Industry Training Organization
HITAC	Heavy Industry Advisory Training Committee
BHKP	Bleached Hardwood Kraft Pulp

INTRODUCTION

This paper will recommend a competitive strategy for the Kamloops Pulp Mill operation to mitigate the impact of the shortage of skilled trade workers.

Kamloops is located in the South Central Interior of British Columbia where the North and South Thompson Rivers meet to form the Thompson River. The Kamloops Pulp Mill is a two-line kraft pulp mill that has been in operation since 1965.

The demographics of the current workforce of 465 are representative of the typical baby boom generation. The majority of employees are approaching retirement and many have worked at this location for over twenty years; some have spent their entire career at this site. Employee turnover has traditionally been very low. Recruitment of new employees, in particular skilled tradespeople, has been relatively easy. The Kamloops Pulp Mill is a desirable location in comparison to many of the pulp facilities in Northern British Columbia.

This report will analyze the Canadian kraft pulp industry as a unique part of the global kraft pulp industry, in order to provide context for the overall attractiveness of the Canadian industry to skilled tradespeople. This report will look at Weyerhaeuser Company Ltd. and its Cellulose Fiber and White Papers segment to understand what impact their business strategies will have upon the Kamloops Pulp Mill. The ownership and control of the mill play an important role in attracting skilled trades from the labour market. This report will also examine the Kamloops Pulp Mill in order to determine its

position within a highly competitive industry, and to determine its ability to attract skilled tradespeople from the labour market.

The supply of skilled tradespeople in the Western Canada labour market is limited and diminishing. The Kamloops Pulp Mill's ability to attract and retain skilled tradespeople in this competitive labour market is based on the overall attractiveness of:

- The Canadian market pulp industry: the mature and highly competitive industry is affected by global conditions and competitors.
- The organization: Weyerhaeuser has a reputation as a stable integrated forest products company, but ownership and control of the Kamloops Pulp Mill is changing.
- The Kamloops Pulp Mill operation: this complex facility is over forty years old, but has a plan and strategies to attempt to stay competitive in a changing business environment.
- The city of Kamloops: this location is a competitive advantage for the Kamloops Pulp Mill in recruiting skilled tradespeople. This community is located in the central interior of British Columbian and offers all the amenities of an urban lifestyle in a rural setting. It also has an attractive climate.[1]

[1] Tourism Kamloops, British Columbia, http://www.tourismkamloops.com/home_showSection_ID_1.html, (Accessed October 14, 2006).

PROBLEM STATEMENT

This paper seeks to assess the impact of the skilled trades shortage and to determine a competitive strategy for Kamloops Pulp Mill in order to minimize and manage the effects of the skilled trades shortage.

The Kamloops Pulp Mill operation requires a skilled trades work force to support its low cost strategy in a global Market Pulp industry. Skilled trades form the foundation of the preventative maintenance program, which is essential to improve equipment reliability. An effective maintenance program is integral to the success of a mill in that it provides longer equipment life, minimizes unplanned downtime, and maintains better functioning equipment to maximize production. These three factors are necessary to support the low cost strategy.

The mill currently employs 150 skilled tradespeople out of a total work force of 465. The supply of skilled trade workers for the Kamloops Pulp Mill is from two sources: the external labour market and internal apprenticeships. The largest source of tradespeople for the Kamloops Pulp Mill has been the external labour market. The Mill has consistently recruited qualified trades people from other companies and from other locations in Western Canada.

The skilled trades shortage in Canada, and in Western Canada specifically, is beginning to affect the Kamloops Pulp Mill's ability to attract and retain qualified skilled tradespeople.

DESCRIPTION OF THE OPERATION

The Kamloops Pulp Mill is a large, complex manufacturing operation. The site is comprised of two Northern Bleached Softwood Kraft (NBSK) pulp mills that are capable of producing a combined total of 1400 air-dried metric tonnes (ADMT) per day. The large pulp mill produces kraft pulp from a wood chip fibre mix, while the other, smaller, line uses sawdust as the fibre input. The Kamloops Pulp Mill manufactures kraft pulp in a variety of different grades and grade mixes based on the species of the fibre and the recipe used to produce the pulp.

In addition, the Kamloops Pulp Mill has invested significant resources into energy production from steam, wood fibre waste and turbines. A major focus of the operation is the production of this energy. The site has two recovery boilers fuelled by black liquor as part of the kraft pulp process as well as two power boilers fuelled by bark and natural gas. In addition, there are two backpressure turbines with a combined capability of thirty megawatts, and a condensing turbine capable of producing thirty-two megawatts. The recovery boilers and the pressure turbines are near the end of their useful asset life.[2]

The operation is capable of producing energy in excess of the amount required to run the facility, and has an arrangement to sell excess power back to the British Columbia Hydroelectric power grid. The Kamloops Pulp Mill has recently started to recover and market a small amount of fibre that is a by-product of the pulp process. This pulp fibre

[2] Weyerhaeuser Kamloops Cellulose Fiber Unpublished Documents, Capital Projects, January, 2006

is dried, baled and packaged at the mill for an end-use as small animal pet bedding. Although both the power and the recycled fibre form a very small percentage of total revenues for the Kamloops Pulp Mill, they demonstrate the ability and desire to move towards product diversification and a strategy of differentiation in the marketplace.

The total asset base of the operation is greater than $320 million on internal financial statements.[3] The Kamloops Pulp Mill is currently seeking a large capital investment of approximately $250 million to replace the recovery boilers and the pressure turbines in order to extend the life of the mill, ensure environmental regulation compliance, and increase its capacity for energy production.

History

In 1964, Kamloops Pulp and Paper Company and Weyerhaeuser Company Limited formed a partnership to build a 250 tonne per day pulp mill in Kamloops. The mill began operating in 1965. Over the next thirteen years, 1965 to 1978, the pulp mill acquired or constructed sawmills in Merritt, Kamloops, Okanagan Falls, Princeton, Lumby and Vavenby[4]. This business growth secured the supply of wood fibre required for the manufacture of kraft pulp, and aligned with the integrated wood products strategy of Weyerhaeuser.

In 1971, Weyerhaeuser gained 100 percent ownership of the Kamloops Pulp Mill, and invested more capital to expand the site capacity to 1,080 tonnes per day. Further capacity expansions occurred in 1978 and in 1994 with the construction of a kamyr

[3] Duquete, C., Weyerhaeuser Kamloops Pulp Mill Financial Analyst, *Personal Interview*, (November, 2005).
[4] Weyerhaeuser The Future is Growing, *Weyerhaeuser In Canada*, (April 2001)

digester. Weyerhaeuser continued to invest in and to maintain the facility until 2006 when it announced a change in ownership.

Kraft pulp is an industry where the successful competitors are those who keep costs low, and adding production capacity is the principal method of reducing cost per tonne. The combined capacity of both pulp lines is 1480 tonnes per day, which places the mill in the top quartile when compared to Canadian and to North American kraft pulp mills.[5] The ongoing investment in capital has been necessary in order to remain competitive in this global market.

Control and Ownership

The Kamloops Pulp Mill operation is currently100 percent owned by Weyerhaeuser Company Ltd., an American-based, integrated, forest products company founded by Frederick Weyerhaeuser and partners in 1900. The current Chairman and Executive Officer, Steve Rogel, is the eleventh in the history of the corporation, and the first non-Weyerhaeuser relative to hold the top position. Weyerhaeuser Company Ltd. has operations in eighteen countries[6].

Weyerhaeuser Company Ltd. is organized into five major business segments:

1. Timberlands;
2. Wood Products;
3. Containerboard, Packaging and Recycling;
4. Real Estate and related assets; and

[5] PriceWaterhouseCoopers, 2004 Market Pulp Study, *Competitive Position Report – 2005*, (June 25, 2006).
[6] Weyerhaeuser Ltd. (online), WWW.Weyerhaeuser.com. (Accessed on September 16, 2006)

5. Cellulose Fiber and White Papers.

The Kamloops Pulp Mill is one of twelve pulp mills in Weyerhaeuser's Cellulose Fiber and White Papers segment.

The Canadian operations of Weyerhaeuser have expanded and contracted with acquisitions and divestures over the last forty years. At its peak in Canada, following the acquisition of MacMillan Bloedel in 1999, Weyerhaeuser's Canadian operations were situated from Vancouver Island to New Brunswick. The large, primary manufacturing sites were the kraft pulp mills in Kamloops, British Columbia and Grande Prairie, Alberta as well as the pulp and paper facilities in Prince Albert, Saskatchewan and Dryden, Ontario.

Segment Strategy

The pulp and paper business has played a significant role in Weyerhaeuser's history and growth as an integrated forest products company. The pulp and paper industry faces intense global competition as well as a decrease in the demand for fine paper. Weyerhaeuser Company Ltd. is under substantial pressure from shareholders to improve return on investment. In the face of these pressures, the Cellulose Fiber and White Papers segment of Weyerhaeuser Company recently initiated major changes that will affect the future of the Kamloops Pulp Mill and the future of the firm.

In April 2006, Weyerhaeuser Company Ltd announced that as part of a strategic review it was considering alternatives for its fine paper business.[7] Corporate leaders indicated that each facility would be subjected to a review, and that this thorough and

[7] Weyerhaueser Ltd., (Online), WWW.Weyerhaeuser.com

disciplined analysis would result in decisions to retain, sell, or close each operation. At the time of this announcement, the Kamloops Pulp Mill was not included as one of these assets under review.[8]

On August 23, 2006, Weyerhaeuser announced it had reached an agreement with Domtar Inc. to combine the fine paper and related assets of both companies to form a new company[9]. The transaction was described by Weyerhaeuser's Senior Vice President, Sandy McDade, as "a tax-free deal for shareholders that provides a great future for employees and one that helps create a new Weyerhaeuser capable of strong future returns." The Kamloops Pulp Mill was included as an asset in this transaction. The Kamloops Pulp Mill is the only asset in this transaction that is a pure market pulp mill; the other large assets are either paper or pulp and paper integrated facilities.

This new organization, referred to as The New Domtar, will be created in part by this spin-off of Weyerhaeuser assets. New Domtar will provide Weyerhaeuser Company Ltd. $1.35 billion through borrowings under a credit facility.[10] Weyerhaeuser shareholders will own fifty-five percent of the new company; Domtar Inc. shareholders will own forty-five percent. The shares of the new company will be distributed to Weyerhaeuser shareholders in either a spin-off or split-off transaction. Domtar Inc. will combine with the newly formed company to be the largest producer of fine paper in North America.

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[8] Weyerhaeuser Kamloops Pulp Mill Unpublished Documents, Communication to Employees, (April, 2006).
[9] Weyerhaeuser Today, Corporate Newsletter, published by Weyerhaeuser Corporate Communications, (September, 2006).
[10] Domtar Weyerhaeuser Transaction Announcement (Online), www.newdomtar.com, (Accessed October 8, 2006).

Domtar Inc. has a primary focus on paper, but is organized into four distinct business segments: paper; paper merchants; wood; and packaging. Sixty-one percent of Domtar's total sales are from its paper segment.[11] There are four pulp mill facilities identified in its paper segment. Domtar's website indicates that it sells 195,500 tonnes per year of market pulp from its Ashdown, Arkansas operation. The other three pulp mills listed do not refer to tonnes of market pulp sold, only that they produce pulp.[12]

Weyerhaeuser's Cellulose Fiber and White Papers segment has a centralized marketing and sales function for kraft pulp. The majority of the kraft pulp produced by the Kamloops Pulp Mill sells to customers in Europe and Asia. It appears that Domtar has the ability and the infrastructure to market kraft pulp from the Kamloops Pulp Mill. However, it is also clear that market pulp is not the core business of Domtar. The Kamloops Pulp Mill will need to determine how it fits into the new organization in terms of its low cost strategy, its desire to differentiate and its plans to diversify.

Firm Strategy

The Kamloops Pulp Mill competes in an industry that faces significant challenges with an increasing supply from low-cost competitors in South America, and a decreasing demand world-wide for fine paper. A low-cost strategy has been the essential approach to long-term survival for Kamloops Pulp Mill. More recently, the firm has tried to leverage its grade mix, fibre and product quality, as well as its customer service into a

[11] Domtar Inc. (Online), http://www.domtar.com, (Accessed October 8, 2006).
[12] IBID

differentiation strategy[13]. This approach is very difficult, if not impossible, in a market that is undeniably a commodity market.

The firm has also invested in the production of energy and in recycling fibres from the pulping process. Energy self-sufficiency and the sale of energy in excess of the operation's needs are part of the future business model, as is product diversification. However, the Kamloops Pulp Mill needs to secure a large amount of capital to replace the recovery boilers which form a key part of the energy production and the pulping process. If acquired, this major upgrade will provide a longer life for the mill and result in lower maintenance costs. This capital investment is also needed to ensure environmental regulation compliance, and to increase power generation capacity.

A recent addition to the Kamloops Pulp Mill has provided the opportunity to increase revenues from a kraft pulp by-product in the form of recycled fibres. The recycled fibres are dried, baled and sold for an end use as small animal bedding. Although very small in terms of revenues, this product diversification is part of an overall strategy to provide a competitive return on net assets (RONA) in an increasingly competitive global pulp market.

In 2005, under the direction of Weyerhaeuser's Pulp, Paper and Packaging segment the Kamloops Pulp Mill was officially re-named "Kamloops Cellulose Fiber". This name change aligned with Weyerhaeuser's business segment, which changed from Pulp and Paper to "Cellulose Fiber and White Papers". These name changes are a clear indication of the firm's desire to expand beyond the commodity pulp market through product differentiation.

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[13] Weyerhaeuser Kamloops Cellulose Fiber Unpublished Document, *Planning for 2006,* (January, 2006).

Workforce

The Kamloops Pulp Mill is a large and complex manufacturing facility operated and managed by an on-site workforce of approximately 465 people. Ninety of these employees are salaried employees while the other 375 are hourly-paid employees are represented by the Communication, Energy and Paper Workers Union of Canada (CEP). The unionized workers are governed by a labour agreement; the current five-year, agreement expires in 2008. The labour agreement is divided into two sections, the main and the local. The main section reflects the standard pulp mill workers agreement in the province of British Columbia and includes items such as wages and benefits. The local section, also referred to the "Bull Session", includes site-specific agreements such as schedules and the apprenticeship selection agreement.

The unionized hourly employees are in one of three key categories: operations, maintenance, or support services. Operations employees include those in the departments of Power and Recovery (also known as the Steam Plant), Chip Yard, Bleach Plant, and Brownstock. Maintenance employees are primarily skilled tradesworkers. Support services employees are those who work in the Technical Department, the Service Crew and the Relief Pool.

The operations employees operate production equipment, machinery and processes. These jobs are structured and organized into lines of progression within the departments. Positions progress upward with increasing levels of responsibilities, and advancement is automatic and based on seniority. Training and skill development is primarily on-the-job. Entry-level operations employees are selected based on their ability to develop the skills necessary to perform the more complex jobs at the top of the lines of

progression. The ability to learn and perform complex functions is particularly important in the Power and Recovery Department.

The operations employees in the Power and Recovery Department operate the power generation facilities and equipment. These positions are organized in a line of progression. Most of the roles require steam tickets, also known as Stationary Engineers licenses. Progress upward is seniority-based, but also combined with the ticket requirements of the positions (higher positions require a higher class of steam tickets).

The Maintenance employees are primarily skilled tradespeople, and are fully trained specialists with government-regulated qualifications in their respective disciplines. These skilled tradespeople provide the crucial hands-on maintenance work. Their trade qualifications are based on the combination of formal study and practical experience working with journeyman tradespeople.

There are fourteen distinct categories of trades listed on the Kamloops Pulp Mill seniority list[14], but for the purpose of this report, the skilled trades categories will be narrowed down to nine more traditional, and mostly larger, groups of tradespeople. This narrower group of trade categories are as follows: Millwrights; Electricians; Instrumentation Mechanics; Pipefitters; Welders; Carpenters; Heavy Duty Mechanics; Heating-Venting-Air Conditioning (HVAC) Mechanics; and Machinists. The ancillary category includes Masons, Painters, Insulators, Tinsmiths, and Stores Warehousemen. A breakdown of the Kamloops Pulp Mill Maintenance Department skilled trades workforce is shown in table 1:

[14] Weyerhaeuser Kamloops Pulp Mill Unpublished Seniority List, (July, 2006).

Table 1: Maintenance Trades Workforce by Trade

Trade	Number of positions
Millwrights	41
Electricians	23
Instrumentation Mechanics	19
Pipefitters	21
Welders	13
Carpenters	6
Heavy Duty Mechanics	4
HVAC Mechanics	3
Machinists	2
Other Ancillary trades	20
Total	152

Table by Author, Data from July 2006 Seniority List

The workforce at the Kamloops Pulp Mill is skilled and experienced. Turnover at the site is low, and many employees have long service. The average length of service for employees of the Kamloops Pulp Mill is over seventeen years. The Maintenance Department employees on average have longer service with approximately nineteen years. The skilled tradespeople at the Kamloops Pulp Mill have the greatest average service at nineteen and a quarter years. Although turnover is low, this is changing. In the last eighteen months, three skilled tradespeople left the organization to go to other employment opportunities. These types of resignations were almost unheard of in the past.

Table 2 Years of Service

Employee Group	Average Years of Service
All employees, Hourly and Salary	17.60
All Maintenance employees, Hourly and Salary	19.03
Skilled Trades	19.23

Table by Author, Data from Weyerhaeuser Kamloops Pulp Staffing Plan, January 2006.

The workforce of the Kamloops Pulp Mill mirrors the typical baby boom demographics. The average age of the entire workforce is forty-nine years old. The skilled tradespeople are slightly older with an average age of fifty-one. Retirement with pension benefits from the hourly plan (referred to as the Industry Plan) can occur as early as age fifty-five. The average age of retirement for skilled tradespeople is sixty-two. This is the age used as the assumption for planning purposes, and reflects the actual retirements that have occurred in the last ten years.[15] The current breakdown of the skilled trades by age is provided in the attached figure 1. Based on the current age of the skilled trades workforce, and assuming retirement at age sixty-two, the Kamloops Pulp Mill can expect to see thirty-three retirements in the next five years.

[15] Weyerhaeuser Kamloops Pulp Mill, Unpublished Staffing Plan (January, 2006).

Figure 1: Skilled Tradespeople by Age.

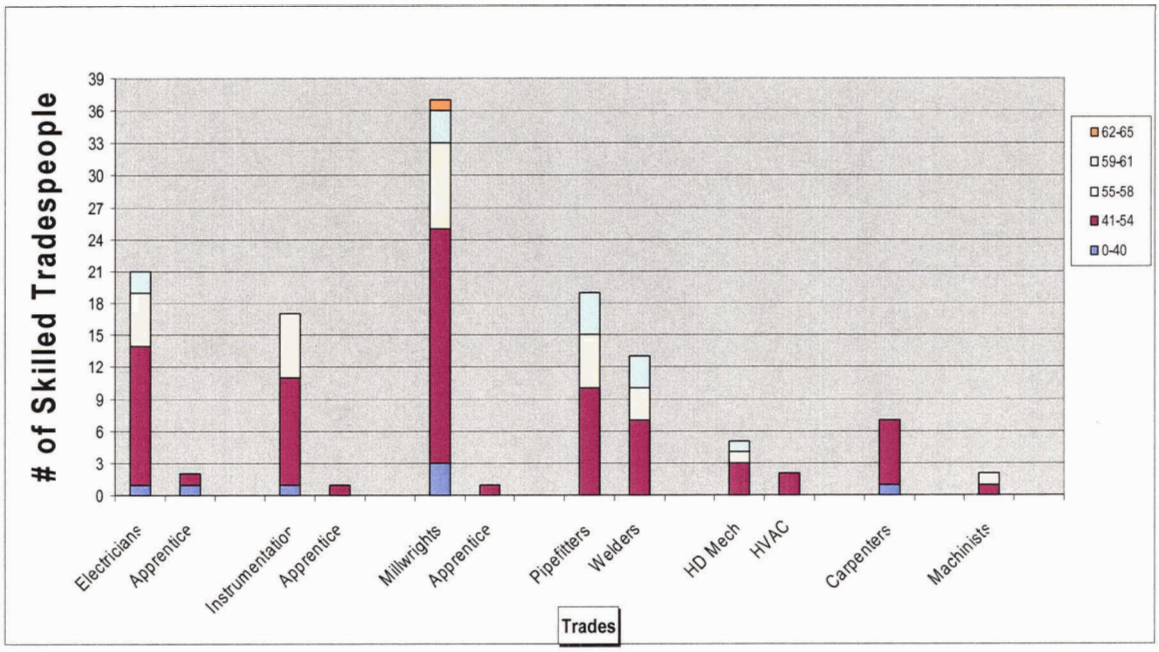

Figure by Author, Data from Kamloops Pulp Mill Staffing Plan

Experienced skilled trades employees are the main source of candidates for leadership roles in the maintenance department. The maintenance leadership roles are Supervisors, Planners, Superintendents and Managers of which there are currently twenty-seven leadership positions in the Kamloops pulp Mill Maintenance Department. Twenty-three of the individuals currently in these roles have a skilled trades qualification or background. The experience, skills and knowledge of the skilled trades workforce creates highly desirable candidates for leadership roles.

INDUSTRY AND EXTERNAL ANALYSIS

The Canadian kraft pulp industry is a unique component of the global industry. Industry attractiveness is relevant in recruiting external skilled trades from the labour market. Skilled trades candidates will view an industry as attractive if it is mature and can provide stable employment. If an industry is mature, but highly competitive as indicated by consolidation, closures and no growth, then it will be less attractive to candidates. The Kamloops Pulp Mill is competing in the labour market against industries such as oil and gas and construction.

Overview

The Canadian market pulp industry is undeniably part of the larger North American market pulp industry, but it is unique in a number of ways. The age of the pulp manufacturing facilities in Canada are similar, with the majority constructed over twenty years ago. These old mills are challenged by their limits on capacity, which makes it difficult to achieve any economies of scale. In some cases, they are also challenged by the ages of their equipment and technology. Currency and exchange rates play a large role in profit margins for Canadian mills because global pulp sales are booked in U.S. dollars. In addition, the supply of fibre in Canada is primarily from public lands and this situation presents specific issues in terms of costs and access.

Market pulp is an intermediate good used primarily in the production of paper and paper-grade products. Pulp is also used to produce rayon, photographic films, cellophane

and explosives. Wood fibre, the key raw material in the manufacture of pulp, is provided as a by-product from sawmills or is produced by chipping whole logs. Some facilities produce pulp to sell on the open market in competition with that of other manufacturers, while others are either partially or fully integrated with paper machines on the same site.

All market pulp produced in Canada on non-integrated sites is sold to customers outside of Canada as part of the global pulp market. Customers are located primarily in Europe, but also in Asia and the United States. The global market pulp industry is fragmented, with producers located all over the world and no one company having greater than six percent of the total market. Recent consolidation in the global industry is evident in that currently the top ten producers have forty percent of the world market, compared to 2002 when the top ten had only twenty-three percent of the market. [16] This same trend of consolidation has occurred in the Canadian market pulp industry.

Consolidation that has occurred since the early 1990s has changed Canada's forest industry significantly.[17] In Western Canada in 1990, there were twenty-one companies, and now there are only ten. In Eastern Canada there were twenty-six, and now only nine. Although consolidation has occurred, Canadian companies remain small by international standards. There are only two Canadian companies in the top ten world market pulp producers, Tembec and Canfor.[18] The forest industry, and especially pulp and paper, require significant capital investment.

Market pulp is a capital-intensive industry, and therefore pulp companies strive to maximize the return on the assets. One way to measure performance is by looking at the

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[16] Shepard, J., President and CEO, Canadian Forest products Limited, *MPA Customer Forum Industry Trends & Innovation*, Presented at the MPA Customer Forum, (May 8, 2006).
[17] IBID.
[18] Salman Partners, *PPPC – International Pulp Week Customer Forum*, Presented at the MPA Customer Forum, (May 8, 2006).

average return on capital employed (ROCE). In Canadian forest product companies, ROCE is only between four and five percent. [19] Capital expenditures are down, margins are tight and overall, investment in pulp and paper is low. Most of the pulp mills in Canada were built over twenty years ago. These aging assets are an issue for the Canadian market pulp producers because they lack the size to compete with newer, larger mills in South America in terms of a minimum efficient scale. The industry in Canada has not attracted investment or capital, and these aging assets have fallen behind in technology as well as in capacity. The costs of maintaining an older, less efficient mill are also adding to the high cost structures of Canadian pulp mills.

Porter's Five Forces

Michael Porter's Five Forces will be the framework used to analyze the Canadian market pulp industry and to understand the nature of the competitive environment in which the Kamloops Pulp Mill exists.[20] Porter's Five Forces model is used to formulate appropriate strategies to be successful in a market. For this report, the model provides a framework in which to better understand the industry context in which the firm operates. This framework is based on the following five forces: 1) competitive rivalry within the industry; 2) the threat of new entrants; 3) the threat of substitutes; 4) the bargaining power of suppliers; and 5) the bargaining power of customers.

[19] CIBC World Markets, *Reconciling Financial Performance with Sustainability in the Paper & Forest Sector; Is it Possible?,* Presented at the 2006 Forest Leadership Conference in Toronto, (March 20, 2006).
[20] Porter, M., "How competitive forces shape strategy", *Harvard Business Review*, (March/April 1979).

Competitors

Market pulp is a commodity good. It is homogeneous in nature and competition between players is intense. By the very nature of commodities, competition is based on price and costs. However, there is a demonstrated desire by market pulp producers to differentiate their product in order to reduce the rivalry between competitors. The extent of differentiation is somewhat limited, but companies such as Weyerhaeuser and Canfor attempt to build strong customer relationships, to emphasize the quality of their product, and, to some extent, to alter their recipe for kraft pulp in order to suit the buyer's needs. The characteristics of pulp are differentiated based on the species of wood fibres, the cleanliness of the fibre, the quality and quantity of the chemicals used and even the equipment in and the process of each plant. In order to be effective, this differentiation strategy must provide value in the eyes of the buyer.

Despite attempts to differentiate, the price of pulp is in theory market driven, not controlled by producers or customers. The essence of the competition between producers, as it is for other commodities, is low cost production to maximize margins against the market prices.

Cost Based Competition

Producers strive to lower their cost structures in order to remain competitive. However, the older Canadian pulp mills tend to be smaller, less efficient and unable to achieve the same economies of scale as the new mills in South America. A less efficient mill means higher costs per tonne of pulp produced. Significant variable costs associated with pulp production are labour, fibre, energy and chemicals. Currency exchange is also a variable cost as all global sales are booked in American dollars.

The costs of hourly labour equates to approximately twenty percent of the total manufacturing cost to produce a tonne of pulp. The Maintenance labour component, which is primarily the cost of skilled tradespeople, is approximately eight percent of total costs.[21] The Canadian pulp mills have attempted to reduce labour costs in order to stay competitive. Three main ways to reduce labour costs are to reduce and control wages and benefits, to add capacity, and to reduce the number of employees through downsizing. In general, attempts to reduce and control the costs of wage and benefits have been limited. Negotiating these changes is difficult in a highly unionized industry, and the industry recognizes the need to attract highly skilled employees. Increasing or adding capacity to Canadian mills requires capital, but even if investment is available, there are inherent constraints in the older facilities due to size or bottlenecks that cannot be engineering out. Downsizing has been the preferred method to reduce the labour costs.

Downsizing has occurred across the industry, particularly over the last decade, as facilities have attempted to stay competitive with their cost structures. There are two ways to reduce jobs. The first is to eliminate jobs as employees retire or leave the company (attrition). The second way is to change the way work is performed by eliminating unnecessary or redundant work, or by changing old, inefficient practices. This second type of reduction is usually associated with greater flexibility of workers.

The costs of fibre and energy are also important for market pulp producers. Fibre cost is approximately twenty-eight percent of the total manufacturing costs, while energy is approximately twelve percent. The costs associated with fibre and energy are inclined to increases. In part, these increases are offset by the short-term increase in fibre supply

[21] PriceWaterhouseCoopers, Market Pulp Study.

in British Columbia, caused by the Mountain Pine Beetle phenomenon, and the ability for some kraft pulp mills, such as the Kamloops Pulp Mill, to generate a significant portion of their energy requirements. However, for Eastern Canada, the costs of both wood fibre and energy are some of the highest in the world. Energy costs in Eastern Canada have increased due to deregulation.[22]

The currency exchange rates can have a large impact on pulp mill cost structures as all global sales are booked in American dollars. When the Canadian dollar is strong against the American dollar, the relative cost of producing pulp in Canada increases. Exchange rates are wholly outside of the control of market pulp producers and are a competitive advantage or disadvantage for a low margin producer.

Supply and Demand

The most significant issue for market pulp in a global sense is oversupply. Currently, supply outweighs demand, and actual capacity is much greater than supply.

The demand for market pulp is based on the demand for paper and for paper products. Printing and writing papers account for about two thirds of bleached chemical market pulp demand. The cost of pulp is a large factor for paper producers' margins. There is an excess of capacity in all paper sectors.[23] The world demand for printing and writing papers has grown at only one point four percent per year over the last five years. The largest single factor associated with world demand is the economic growth in China, which account for sixty-four percent of demand growth since 2000.

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[22] Schaefer, K., Director, World Fiber Service, RISI, "*Market Pulp Outlook: How Will the Market Absorb the Coming Wave of Low-Cost Capacity?*", A presentation at the 2006 Forest Leadership Conference in Toronto, (March 20, 2006).

[23] Hawkins Wright, *Industry Trends*, A presentation at the International Pulp Week Customer Forum, (May 8, 2006).

China is both a customer of Canadian market pulp, and a competitor of Canadian paper makers. The "make or buy" decision for mills in China is constrained by the fact that China is only forty percent self-sufficient in wood fibre.[24] The demand for market pulp in China is one of the few opportunities for increased market share.

Barriers to Exit

The barriers to exit for Canadian market pulp mills are relatively high. These barriers include environmental and economic considerations in conjunction with private use of a public resource, but the largest barrier, and the most difficult to overcome is the socio-political barrier. As an example, the Port Alice Pulp Mill on Vancouver Island has closed a number of times in the last few years but has been repeatedly resurrected by government-assisted investors. There is significant pressure from employees, communities and voters on the political and business leaders to intercede and to provide financial incentives and encouragement to keep the mill operating. The strong media focus during mill closures is on job loss and the fragile economies of small, resource-based communities.

Threat of Potential Entrants

Overall, the threat of new entrants in Canada is low, but on a Global scale the threat is high. This new capacity will be in South America, China, or Russia. This threat of new entrants is based on substitute products, such as the pulp from South America, a Bleached Hardwood Kraft Pulp (BHKP) Eucalyptus. Both hardwood and softwood pulp are used in the production of writing papers, but the strength and tear resistance in paper

[24] CIBC World Markets.

comes primarily from the softwood pulp quality and characteristics. With new technology and innovation in paper making processes, South American hardwood market pulp may replace the Canadian bleached softwood kraft pulp.

The threat of new entrants in Canada is low. The common barriers to entry are product differentiation (patents, brand loyalty) and costs (capital investment, economies of scale). In the case of market pulp, patents are not an issue as the recipe and process for producing pulp is relatively similar between companies, and brand loyalty is not usually a concern for commodity products. Proctor and Gamble argue that brand loyalty does exist for their paper products, and emphasize, "Branding is our life."[25] Generally, brand loyalty to a commodity such as market pulp is not a barrier to entry. High costs then are the only real barrier to entry in the Canadian and the global market pulp industry.

It is unlikely that an investor would start up a new mill in Eastern Canada given the high cost of capital investment required and the high costs of fibre and energy. Western Canada is slightly more attractive, but the current pulp producers have already secured the fibre supply. Inserting a new producer in this supply chain would be difficult. In British Columbia, the wood fibre will increase in the short term in conjunction with the mountain-pine-beetle epidemic, but this short-term glut of wood fibre would not provide sufficient time to pay back the investment capital required. There is simply not enough raw material, nor sufficient profit margins, to attract competition.

[25] Proctor & Gamble, *" Industry Trends & Innovation – A Market Pulp Buyer's Perspective"*, A Presentation at the MPA Customer Forum, (May 8, 2006).

Threat of Entrants Globally

Although entrants in the Canadian industry are not a threat, entrants of new competitors in other regions of the world are a threat. This threat of entrants can be considered either as competition in the larger global market pulp industry or as substitution given that new mills would produce a hardwood pulp. Regardless of the perspective, new entrants in other regions will have an effect on Canadian market pulp producer's ability to sell pulp in the global market, so must be a consideration in this analysis. The regions where entrants could occur are South American, Russia and China. Entrants in the United States are not a large threat as American pulp and paper mills are reducing capacity and closing in response to prohibitive cost structures and low profit margins. In addition, environmental restrictions in the United States make the addition of new capacity and new entrants difficult and highly unlikely.

The threat of entrants to the market pulp industry is from global competitors who can compete with significantly lower cost structures. Recent announcements of new market pulp capacity are primarily from South America. In 2004 and 2005, five new mills opened in South America with a combined capacity of 4.8 million tonnes. [26] It is predicted that an additional 7.1 million tonnes of market pulp capacity will be added from this region by 2010. The competitive advantages that South American mills enjoy are the abundance of easily accessible Eucalyptus trees, the latest technology in their newly built plants, low labour requirements, low labour costs, and an undervalued currency, which conveniently provides greater profits. The global market pulp industry has been

[26] Weyerhaeuser Cellulose Fibers, Unpublished document, "*Navigating Through a Sea of change*", (April 14, 2006).

described by investors as moving south at an accelerating pace.[27] The European and Nordic pulp mills continue to be strong competition in the global market and some of these companies are funding the construction of new mills in South America.

Russia has the potential to bring on new capacity in market pulp and has been steadily increasing its production although this increase is hampered by financial problems. [28] There is fibre available in the relatively untouched Siberian forests, and the pulp and paper industry has been growing to serve domestic demand and export as well.

The most significant region that is developing new pulp and paper mills is China. The primary goal would seem to be more self-sufficiency in order to meet its domestic demand, but the future needs and demand of China are uncertain. [29] China currently imports market pulp from North America, but the proximity of Russia makes it a potential supplier of fibre for China.

Threat of Substitutes

The threat of substitutes, both direct and indirect, is high for Canadian market pulp producers. Direct substitutes are softwood pulp made in other countries and hardwood pulp made in South America. Indirect substitutes refer to media that are replacing paper, such as electronic media.

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[27] IBID, quoting Deutsche Bank, (March 13, 2006).
[28] Minkevitch, M., *Industry Sector Analysis: Pulp and Paper Industry in Russia,* U.S. Commercial Service 2004, (Online), Http://www.buyusa.gov/russia, (Accessed May, 2006).
[29] Center for Paper Business and Industry Studies, "*State of the North American Pulp & Paper Industry – An Update & Outlook. Unstable Times – Problems or Oportunities?*", (October, 2005).

Direct Substitutes

Hardwood pulp is a substitute for Canadian market pulp, which is a northern bleached softwood kraft pulp. Paper makers use both hardwood and softwood is their recipes. Of the two, softwood pulp is more expensive than hardwood pulp therefore one way for paper makers to control costs is to minimize the amount of softwood pulp used in their recipe for paper. However, quality then becomes an issue since it becomes more difficult to maintain the desired strength qualities of paper when less softwood pulp is used. As technology improves, it is possible that papermakers will be able to make fine papers with little or no softwood pulp in their recipe.

The other direct substitute for white paper is paper made from recycled fibres. This form of paper is popular as the green movement grows, even though recycled products are more expensive to produce than virgin fibres.

Indirect Substitutes

Although many predicted a decline in the use of paper with the advent of the computer age, this decline has only recently become a reality. Computer users who were both accustomed to and had a preference for paper continued to print out documents so they could touch and hold them. The use of paper is now diminishing as the use of electronic media has increased. This tendency to over-estimate the effect of a technology in the short term and to under-estimate the effect in the long term is described as Amara's law.[30]

[30] Amara, R., Past President of the Institute for the Future. http://en.wikipedia.org/wiki/Amara's_law, (Accessed November 4, 2006).

Paper for high end uses such as brochures and year-end reports is being replaced by electronic media. Other communication forms substituting for paper include the Internet, PDAs, cellular telephones (used both for phoning and for text messaging) and digital TV. Substantial future growth is predicted for e-newspapers and e-Readers.[31]

Bargaining Power of Customers

The bargaining power of customers is moderate to low. There are two types of customer power, price sensitivity and negotiating power, that come into play in the market pulp industry. Prices are market driven, and if a supplier announces a price increase, it does so at risk of losing market share unless other producers follow suit.

Market published prices are misleading, as these are not the price that customers actually pay. The negotiating power of customers who purchase in quantity is always present in the market and large producers provide discounts off the "market" price. This is a well-established practice and it is unlikely to change.[32] Customers demand and receive discounts for volume purchases, as well as for products that are off-grade, lower grade, or the wrong grade. In addition, producers provide one-way contracts to customers, a sort of guarantee of a specified quantity of supply. Customers, however, do not agree to purchase specified quantities.

In addition, prices are "FOB", or freight on board, which means that the cost of transporting the goods is born by the seller. Customers use this feature to negotiate lower prices on market pulp from producers who do not incur as much shipping cost. The costs of transportation are not under the control of market pulp producers, but these costs can

[31] Hawkins Wright, *Industry Trends.*
[32] Weyerhaeuser, *Navigating Through a Sea of change.*

and do have an impact on the profit margins of the sellers. All of the market pulp produced in Canada sells in other countries, mostly overseas, and therefore transportation costs are a cost consideration.

Bargaining Power of Suppliers

The bargaining power of suppliers is moderate to high. The key supplies for market pulp producers are fibre (wood chips and sawdust), labour, transportation and energy. In general, the suppliers to Canadian pulp mills are experiencing consolidation to various degrees and this means there are fewer suppliers wielding more power.

Fibre is supplied by sawmills in the form of wood chips and sawdust. The revenue associated with the fibre equates to approximately thirty percent of a sawmill's total revenues.[33] The profitability of the pulp industry is important to the sawmill industry and vice versa. It is a symbiotic relationship. The global trend in fibre is an increase in supply and prices are expected to decline. For British Columbia, the predicted increase in fibre supply will last approximately five years because of the beetle kill issue. In Eastern Canada, primarily in Quebec and Ontario, fibre prices are expected to increase in connection with the cost of roads and access to timber.[34] This price disadvantage may be too large a barrier for Eastern Canadian pulp producers to overcome.

Transportation costs are a concern for market pulp as all products are sold freight on board. Canadian market pulp is destined to Europe and Asia, and therefore the transportation costs are significant when compared to those of a producer who can ship

[33] CIBC, World Markets.
[34] IBID.

from a European country. Transportation costs increase in proportion with fuel costs. Switching costs are also a consideration, particularly with rail transport.

Labour costs in Canada are high in comparison to global competitors. This is partly due to the strong unionized labour force that demands higher wages and benefits. Higher labour costs are associated with the older mills in Canada that require more labour to produce pulp and to maintain the mill. The Communication, Energy and Paperworkers Union (CEP) represents the majority of Canadian pulp workers. A small portion of workers in British Columbia are represented by the Pulp and Paperworkers Workers of Canada (PPWC). Both unions have a history of strength in negotiations. Labour concessions are rare, but they have occurred in the Eastern Canada pulp mills represented by the CEP. As global competition and pressure to reduce costs increases, kraft pulp producers will attempt to reduce the cost of labour per tonne of pulp. As mentioned previously, the three methods to affect this cost are to increase capacity, to reduce the cost of wages and benefits, and to reduce the number of employees.

Rising energy prices, particularly of natural gas that is required to operate boilers in some of the mills, are a concern. In Eastern Canada, the deregulation of energy providers has caused energy costs to spiral upwards. Although many pulp mills have the ability to become energy self-sufficient and even to become net suppliers of power to the grid with wood waste systems, the amount of capital required to implement these types of improvements is significant.

The Canadian Market Pulp industry is a distinct subset of the global market. It has some unique characteristics, but none provides any form of competitive advantage. This industry is best described as disadvantaged. The Canadian Market Pulp industry

faces high competition based on costs, a global oversupply of product and a decrease in the demand of fine paper, which is the primary end use for kraft pulp. There is a high threat of substitutes and high barriers to exit the industry. Suppliers have moderate to high bargaining power over producers and customers have a moderate to low bargaining power. There is a low threat of new entrants from within Canada, but a high threat of entrants from other parts of the world.

Overall, the Canadian Market Pulp industry is unattractive to both investors and to the skilled trades labour market. The industry does not show promise of growth, or stability. There have been mill closures in some regions, and downsizing in most.

KEY SUCCESS FACTORS

The key success factors for the kraft pulp industry, and for the Kamloops Pulp Mill as it competes in a global market, are primarily cost-based measures.

The total manufacturing cost per tonne of kraft pulp produced by twenty-four Canadian NBSK manufacturers ranges from $320 to $743 dollars per tonne.[35] This cost excludes overhead, depreciation and taxes. The cost per tonne of pulp produced is a common measurement of the productivity, efficiency and overall competitiveness of the operation.

A cost-based measure that looks at total workforce productivity is the number of tonnes produced per full-time-equivalent employee. In an industry survey of eighteen Canada facilities, this measurement ranges from a low of .83 at the twenty-fifth percentile, to a high of 1.19 at the seventy-fifth percentile.[36] The more tonnes produced per employee, the more efficient the operation.

Mill efficiency relies on the availability and the effective use of equipment, materials and resources. The Maintenance Department must provide an effective maintenance program that extends the life of the equipment, improves the functioning of the equipment, minimizes unplanned downtime and maximizes machine up time. The

[35] Weyerhaeuser Unpublished documents, *Canadian NBSK Pulp Mills Cost Estimates – 2006 1st QTR.*, Competitive Analysis (2006).
[36] PriceWaterhouseCoopers, *Market Pulp Study*.

hands-on work of skilled tradespeople is essential to support and implement the maintenance reliability strategies.

A cost-based measure of the skilled trades in a kraft pulp mill is the number of tonnes produced, per full-time-equivalent maintenance employee. The greater the number of tonnes produced per maintenance employee, the greater the productivity of the skilled trades workforce. For a group of eighteen mills in Canada, this measurement ranges from a low of 2.61 at the twenty-fifth percentile, to a high of 3.79 at the seventy-fifth percentile.[37]

[37] PriceWaterhouseCoopers, *Market Pulp Study*.

INTERNAL ANALYSIS

Financial Measures

The Kamloops Pulp Mill's total manufacturing cost per tonne of pulp is relatively low in comparison to that of other Canadian mills. The Kamloops Pulp Mill ranked third out of twenty-four Canadian NBSK pulp mills in the first quarter of 2006.[38] This position is an advantage when competing against other Canadian mills in the commodity-based global market.

A broad measure of total workforce productivity for the Kamloops Pulp mill, the number of tonnes of pulp produced per full-time-equivalent employee, is slightly below the average of the other Canadian kraft pulp mills. The Kamloops Pulp Mill ranks eleventh out of eighteen Canadian mills, which makes it middle of the pack. The ranking rises to eighteenth out of twenty-seven when compared to North American mills, which makes it only slightly below average.[39]

However, the number of tonnes produced at the Kamloops Pulp Mill per full-time maintenance employee equivalent is quite low. The mill ranks sixteenth out of a group of eighteen Canadian facilities. When compared to a larger North American group of twenty-six kraft pulp mills, the Kamloops Pulp Mill places twenty-fourth out of twenty-six.[40] There are only two other mills in North American that produce fewer tonnes per

[38] Weyerhaeuser Unpublished Competitive Analysis.
[39] PriceWaterhouseCoopers, *Market Pulp Study*.
[40] IBID.

maintenance employee. This measure of maintenance-productivity indicates that there are more skilled trades workers at Kamloops Pulp Mill than at most other mills.

The number of skilled trades workers can be attributed to two factors: the age of the mill and the complexities of a two-line mill. Older equipment is prone to break down more frequently and requires more maintenance. However, the kraft pulp mills, particularly in Canada, are quite similar in age. The fact that Kamloops has two separate manufacturing lines could result in more planned and unplanned maintenance work. This characteristic could be a key factor in understanding why the Kamloops Pulp Mill has a higher number of skilled trades.

Weyerhaeuser Organization

Weyerhaeuser Ltd. company's financial highlights as of December 31, 2005 include annual net sales and revenue of $22.6 billion with net earnings of $733 million.[41] The total assets of the company are $28.2 billion. The share prices in 2005 ranged from a low of $61.12 to a high of $71.52. Weyerhaeuser Ltd. is a stable organization and a Fortune 100 company.

The reputation and financial performance of the controlling organization affects the Kamloops Pulp Mill's ability to recruit and retain a skilled workforce. The recently announced change in ownership that becomes effective in the first quarter of 2007 will have a negative impact on the mill's ability to recruit and attract workers. The change in ownership raises two large questions about the long-term future for the Kamloops Pulp Mill: future ownership and capital investments. It is unclear if the Kamloops Pulp Mill is

[41] Weyerhaeuser Ltd. (Online).

a strategic fit for the New Domtar's current and future asset portfolio. The operation is at risk to be sold to another organization or investor. The most crucial question is, "Is the New Domtar willing and able to invest the capital needed to replace the boiler at the Kamloops Pulp Mill?" This capital investment is required to sustain the life of the mill and therefore to provide a reasonable level of certainty for both existing employees and for candidates for employment.

Recruiting external candidates for the Kamloops Pulp Mill under the ownership of New Domtar will be more difficult. Domtar has had little presence in Western Canada, and therefore will not be able to rely on its reputation to attract candidates from the labour market. In addition, turnover of skilled tradespeople may increase if employees perceive their long-term employment opportunities are at risk with the Kamloops Pulp Mill.

Kamloops Pulp Mill

The Kamloops Pulp Mill has two large issues affecting its future: 1) the change in ownership, and 2) the need for a large capital investment. In addition to these looming issues, the operators of the mill must attempt balance their actions between the traditional cost strategy and preparing for the future with a strategy of diversification and differentiation. A strong skilled trades workforce that supports the maintenance program and equipment reliability will be essential for the future. The change in ownership to the New Domtar is a large emotional event for employees who have spent their entire careers with Weyerhaeuser. The change will also bring new company policies, processes and culture. This change may cause uncertainty, but also provides hope that Domtar will have the willingness and ability to invest in the Kamloops Pulp Mill.

The Kamloops Pulp Mill has proposed to Weyerhaeuser Company Ltd. a capital investment of $250 million in order to construct a new high efficiency recovery boiler, a turbine generator and an evaporation plant. This investment is required in order to re-life the mill for the next forty years. This capital injection will enhance the competitiveness of the mill by reducing the energy costs, improving reliability by fifty dollars per tonne, enhancing environmental performance, and generating additional green power to achieve electrical self-sufficiency and to sell power back to the Province of British Columbia.[42]

The power generation capability of the Kamloops Pulp Mill relies on very old equipment. There are two recovery boilers – one constructed in 1964, and the other in 1972 – that operate within the black liquor recovery cycle and are capable of generating thirty megawatts of power. Both of these existing recovery boilers have limited life remaining from both an operations and a maintenance perspective. As it is, the recovery boilers are challenged to operate within the current environmental requirements. The power boiler replacement is essential to the long-term life of the mill. The new power boiler will also create an increased and diverse revenue stream for the Kamloops Pulp Mill from the sale of excess energy.

The Kamloops Pulp Mill is a large, complex and aging manufacturing site that requires a skilled maintenance workforce to ensure a reliable operation. The annual maintenance budget, which covers the costs of labour, materials, and external contractors, (also referred to as major maintenance) is over $40 million.[43]

The Maintenance Department attempts to operate a mixed maintenance strategy with a strong foundation in a preventative maintenance program. An effective

[42] Weyerhaeuser Unpublished, *Planning 2006.*
[43] IBID

preventative maintenance program is a comprehensive set of procedures for proactively maintaining equipment. It specifies the preventative maintenance tasks that are required, the frequency and sequencing of these tasks, and a system of recording and reporting tasks completed and outstanding.[44] The goals of preventative maintenance are to prolong the life of equipment, to ensure a high degree of reliability, and to maximize operational availability at minimal cost. Preventative maintenance is labour intensive as it relies on skilled, experienced tradespeople with knowledge of specific equipment. The work associated with the preventative maintenance program tasks are essentially the work of the skilled tradespeople.

Maintenance reliability and maximum uptime is essential for the Kamloops Pulp mill to remain competitive with a low cost strategy. Unplanned downtime is costly in terms of dollars and resources. The average cost of downtime based on the production capacity of 1400 tonnes per day is $455,000 per day, or almost $19,000 per hour (calculated on a contribution margin of approximately $325.00 per tonne).[45] A single minute of downtime costs between $300 and $400. A minute of downtime requires approximately ten minutes of operating time to reduce the loss the zero.

In order to maximize reliability, the Maintenance Department prioritizes the planned and required work against manufacturing schedules, available internal resources, contract resources and cost controls. The extensive preventative maintenance work that requires machine downtime is completed during the annual maintenance shutdown that typically lasts for seven to fourteen days per year.

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[44] Blatchford, C., *Moving Towards World Class Maintenance*, Applied Project to satisfy the requirements for the MBA Program, Centre for Innovative management, Athabasca University, (June, 2002).
[45] Duquette, C., *Personal Interview*.

If there is an equipment failure resulting in unplanned downtime, the Maintenance Department must respond quickly to coordinate resources, parts, supplies, equipment and skilled tradespeople. The ability, knowledge and experience of the skilled tradespeople are essential requirements to be able to respond quickly to unplanned downtime. As with all capital-intensive operations with high fixed costs, minimizing downtime and maximizing production are essential to the financial success of the mill.

The success of the maintenance function at the Kamloops Pulp Mill depends on the quality of the individual and collective skills and ability of the skilled tradespeople. The skilled tradespeople at the Kamloops Pulp Mill are "seasoned," with many years of hands-on experience and training. These tradespeople, with an average of 19.23 years of service at the mill, have extensive knowledge of the equipment on site. This talented workforce has been a key element in an effective maintenance organization for the Kamloops Pulp Mill.[46] However, at the same time, the fact that skilled trades have had low turnover has minimized the need to consider creating more apprenticeships internally. It has been cheaper and easier for the Kamloops Pulp Mill to hire skilled trades from the external labour market.

[46] Blatchford, *World Class Maintenance*.

THE SKILLED TRADES LABOUR MARKET

History of Apprenticeships

The definitions of an apprentice as a noun are: 1) one bound by indenture to serve another for a prescribed period with a view to learning an art or trade[47]; 2) one who is learning by practical experience under skilled workers a trade, art, or calling; 3 an inexperienced person, a novice. The definition of apprentice as a verb is: to set at work as an apprentice, to bind to an apprenticeship by contract or indenture[48]

The concept of apprenticeships has been part of the trade culture for a very long time. In ancient Greece, young boys were paired with older, experienced men, so each boy could learn and emulate the values of his mentor.[49]

Later, young boys were apprenticed to a master in their trade, who owned a shop or business. The boy lived with the master, and eventually worked his way up to journeyperson, finally becoming a master himself. Out of this practice came craft guilds, which controlled wages and the quality of work.

The master-apprentice relationship was eventually transformed into an employer-employee relationship during the industrial revolution.

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[47] The American Heritage®, *Dictionary of the English Language, Fourth Edition,* (Online), http://dictionary.reference.com, (Accessed October 22, 2006).
[48] Miriam-Webster, (Online), http://www.m-w.com/, (Accessed October 20, 2006).
[49] Dunn, A., *"Canada Faces a Shortage of People Who Make things Work,"* Capital News Online, Carleton School Of Journalism, (Online), http://temagami.carleton.ca/jmc/cnews/02042004/n3.shtm, (Accessed June 27, 2006).

There are three stages of apprenticeship: apprentice; journeyman; and master. An apprentice would train under a master for a number of years, eventually advancing to journeyman stage with the basic skills and knowledge of a particular craft. The journeyman could then begin working, and after a number of years, he could attain the status of master and take on his own apprentices

In the 20th century, for reasons still being studied by sociologists, it became "less than desirable" to seek skilled trades positions. People viewed getting a university degree as the only way to succeed in life and make a decent living.[50] As a result of this shift, there has been a steady decline in the numbers of people completing apprenticeship programs over the last twenty years.[51] Employers' demand for skilled tradespeople now exceeds the available supply in Canada.

Supply Shortage

The shortage of skilled tradespeople is substantial, and predicted to worsen. The estimate from a Conference Board of Canada report in 2000 was "a shortage of one million tradespeople by 2020." That prediction came as a shock and a wake-up call for the employers, particularly those in the manufacturing sector which will be severely impacted by the skilled trades shortage.

Manufacturing is Canada's largest business sector. It accounts for almost twenty percent of all economic activity in Canada and provides jobs for 2.3 million Canadians.

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[50] Dunn, *Canada Faces a Shortage.*

[51] *Skilled Trades, A Career You Can Build On*, A Project funded by the Government of Canada Sector Council Program (online), http://www.careersintrades.ca, (Accessed November 1, 2006).

Within the manufacturing sector, there is an estimated 400,000 workers required in the next fifteen years to replace those due to retire. [52]

Three powerful drivers are affecting the supply of skilled tradespeople in Canada, and particularly in Western Canada. Firstly, the economic boom in Alberta and British Columbia is creating more jobs for skilled tradespeople. Secondly, the baby boom demographics of the skilled trades workforce will see a significant portion of these workers retire. Thirdly, the number of new entrants into the skilled trades labour market is relatively low.

Industry in Western Canada is already feeling the impact of the skill shortage, and expressing concern about the future supply. Seventy-three of seventy-six major industry associations in Western Canada expect to encounter moderate to severe shortages of skilled workers within the next five years.[53] This shortage coincides with an increase in economic activity in both Alberta and British Columbia.

The economic boom in Alberta is one of the largest single factors driving the skilled trade shortage in Western Canada. The energy industry in Alberta has the highest demand for these workers, mostly in the oil sands where there are abundant opportunities for skilled tradespeople for increasingly higher wages.[54] However, the demand for skilled tradespeople in Alberta is not only associated with the energy and oil industry. The transportation and logistics, construction, and the manufacturing industry sectors are

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[52] Perrin, Honourable B., *Ensuring the Future of Canadian Manufacturing.*, Canadian Manufacturers and Exporters, (February, 2005).
[53] McNeill, M., *Skilled workers Wanted*, Canadian Manufacturers and Exporters Press Release (Online), www.cme-mec.ca/mb/media.asp. (January 14, 2004).
[54] Sankey, D., "Demand Remains High for skilled Tradespeople", *Calgary Herald*, (January 18, 2006).

also booming in Calgary. Many companies are looking for new ways to find skilled workers.

In British Columbia, the economy is also booming. The construction sector is having difficulty sourcing skilled tradespeople. A recent Statistics Canada report indicates the biggest job expansion is taking place in British Columbia, with a job growth rate of three point eight percent, and that the construction industry had the third-highest growth rate of all sectors in 2005.[55] In addition to the economic drivers increasing demand for skilled trades, the demographics of our labour force compound the issue by decreasing the available pool of younger workers.

The second driver to the trades shortage in Western Canada is the number of Baby Boomers starting to retire. The majority will soon follow. This is a larger concern for British Columbia employers than those in other provinces because British Columbia has one of the oldest workforces in Canada. In January 2004, almost thirteen percent of the British Columbia workforce was age fifty-five or older.[56]

The third powerful driver is a decrease in the supply of skilled trades. In addition to the increased competition between employers, there are not enough young people entering the skilled trades labour market to fill the gap left by those retiring. University seems to be the first choice for post-secondary education among Canadian youth. The future supply of skilled workers for Canada, and specifically for British Columbia, is at risk.

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[55] McQuigge, M., "Skilled Trades Shortage Hits Construction Hard", *Financial Post*, (Online), http://working.canada.com/victoria/resources/hotsectors/story.html, (January 18, 2006).
[56] McMullin, J., *Labourforce Aging and Skill Shortages in Canada and Ontario*. Canadian Policy Research Networks, Ottawa. (August, 2004).

The government estimates that over the next twelve years there will be a shortfall of 350,000 workers in British Columbia. [57] In response to the shortfall of skilled trades, the government has plans to create an additional 7,000 apprenticeship spaces in British Columbia by 2010.

The focus for new entrants to the skilled trades labour force will be youth and non-traditional sources. The non-traditional sources also referred to as the equity-seeking groups, are Aboriginals, women, persons with disabilities and visible minorities.[58] The majority of the new entrants to skilled trades will be from youth. Therefore, it is important to consider the factors affecting the potential entry of youth.

A study by the Canadian Apprenticeship Forum identified key factors contributing to the skilled trades shortage as 1) the negative perception of youth in regards to trades, 2) the belief that a university education provides a more promising and secure future, and 3) a decline in the number of apprenticeship completions.[59]

Canadian youth have some negative perceptions of the skilled trades and are generally not that interested. Some of the stereotypical perceptions are that the work is dirty, dangerous, physically demanding, with low pay, and for people with less intelligence and education.[60] Unfortunately, the industries that provide careers in skilled trades do not have attractive reputations. It is common knowledge that these industries, such as forestry, pulp, paper and mining, have suffered downsizing and closures over the

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[57] Campbell, Premier, G., "*New Measures to Train, Attract and Retain Worker*", A press release from Office of the Premier of British Columbia, (November 5, 2006).
[58] Canadian Apprenticeship Forum, *Promoting Skilled Trades & Apprenticeship Project. Phase 1 Report Summary*, Prepared by APCO Worldwide for the Government of Canada's Sector Council Program, (January, 2004).
[59] IBID.
[60] Careers In Trades, (Online), http://www.careersintrades.ca, (Accessed November 1, 2006.)

last two decades. In addition, many of these skilled trades jobs are located in small, remote and Northern communities. Youth tend to migrate to large, urban centres, as evidenced by the population decline in rural and small towns of twelve percent from 1976 to 1996. [61]

Youth are naturally drawn towards university education as a means to achieve white-collar jobs in urban centres. Expectations and aspirations of parents cause them to push secondary education or service sector as better career options.[62]

The third factor contributing to the trades shortage is the decline in the numbers of people completing the apprenticeship programs. Although there is an increase in the number of registrants into apprenticeships by fifty percent over the last twenty years, the number of new skilled tradespeople entering the labour market is relatively the same.[63] There are many factors contributing to the low completion rates such as personal, financial, as well as employer retention and training practices.

Although many employers, and industry, are aware of the shortage of skilled tradespeople, there exists a tendency to for them take their chances in the labour market, as if the shrinking supply will not affect them. Many employers do not have active apprenticeship programs, and perceive barriers to participating in building a better supply of skilled trades.

The Conference Board of Canada completed a study to assess the shortages of skilled tradespeople and determine how to address these shortages. As a result of this

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[61] Canadian Apprenticeship Forum, *Promoting Skilled Trades.*
[62] Conference Board of Canada, *Solving the Skilled Trades Shortage.* Page 12, (March 28, 2002)
[63] Canadian Apprenticeship Forum, *Promoting Skilled Trades.*

study, they identified eight employer barriers to a better supply of skilled trades from youth.[64] These barriers are:

1. **Attracting youth.** This attraction needs to be youth to industry, and industry to youth.
2. **Lack of a business case.** Many employers have not taken the time to understand the importance and the payback associated with having apprenticeships.
3. **Lack of information.** Small employers may not know how to run an apprenticeship.
4. **Lack of training standards**. Employers may not be aware of the current standards, and may not want to adhere to them.
5. **Mismatch of workplace schedule with training system**. It can be difficult to free up apprentices from the needs of the business in order to attend training.
6. **Stereotyping.** Negative stereotyping exists where it comes to considering women and minorities for apprenticeships.
7. **Perceived lack of apprenticeship loyalty**. Employers fear that once apprentices complete their trade qualification, they may choose to leave the employers who trained them.
8. **Employer management practices**. This speaks to organizational culture and employees' needs to be recognized, to be appreciated and to work in a positive environment that provides job satisfaction.

[64] Conference Board of Canada, *Solving the Skilled Trades Shortage*, Page 18.

The perceptions identified by the conference Board of Canada provide some explanation for the lack of action by employers in establishing more apprenticeship programs. Additional concerns of employers are cost related. If employers choose to invest in apprenticeships, there is no guarantee that the individuals will work long enough to cover off the cost of the investment. Employers are responsible for the majority of costs associated with an apprenticeship; this is in contrast to university level education which is highly subsidized by government. Employers are reluctant to make the investment in apprenticeships except as a last resort.

Provincial Apprenticeship Programs

The apprenticeship programs in British Columbia were based on an old model and remained the same for many years. The qualifications for each trade were regulated and managed by government. Apprentices worked under journeypersons at the worksite and attended classroom training once a year at various sites in British Columbia. The content of the training was updated as technology advanced, but the fundamentals were the same. All journeyperson tradespeople had to complete a prescribed number of hours on-the-job-training, and successfully pass exams at each level. Success in the final exam provided the apprentices with their Trades Qualification (TQ).

In addition to the TQ, many of the trades offered inter-provincial certification through the Red Seal designation. The Red Seal Program was established to provide greater mobility across Canada for skilled workers. Through this program, apprentices who complete their training and become certified journeypersons are able to obtain a "Red Seal" endorsement on their Certificates of Qualification and Apprenticeship by

successfully completing an Inter-provincial Standards Examination.[65] This Red Seal designation is recognized between the provinces as a standard of knowledge and skills. As demonstrated through the Red Seal program, although the apprenticeship programs stayed the same for many years, they are beginning to be changed and improved.

The British Columbia apprenticeship program is forging a new direction under the Industry Training Authority Act (ITA), which was established in January 2004 as a crown agency accountable to the Ministry of Economic Development. The mandate for the ITA is described in four goals: 1) set standards for industry training programs and qualifications; 2) provide coordination among industries, learners, and training providers; 3) fund industry training; and 4) promote industry and trades careers.[66] The overall mission of the ITA is to establish a new, industry-led training model for British Columbia.

Under this context, specific Industry Training Organizations formed to begin working on the skilled trades apprenticeships within their industries. Industry Training Organizations developed for Residential Construction, Horticulture and Automotive. The next priority for the ITA is the British Columbia Industry/Resource sector, which includes the pulp and paper industry.

Based on this priority status, the ITA has recommended an accelerated establishment for this training organization. The ITA has also recommended that the British Columbia Industry/Resource sector move quickly to build programs with First

[65] The Interprovincial Standards Red Seal Program (Online), http://www.red-seal.ca, (Accessed November 4, 2006).
[66] Industry Training Authority, *A New Direction in Industry Training*, Presented at the HITAC, Industry Training Organization Workshop Session, (September 2006).

Nations partners and has offered funds to support immigrants and new trade programs.[67] This industry training organization will have an incredible opportunity to shape the apprenticeship program to support the needs of industry. It will set standards and coordinate the development of an integrated apprenticeship plan for industry. The kraft pulp industry will benefit from the work under the direction of a newly established Board of Directors. Five of the nine business Board of Director members represent forest companies; the other four board members will be union representatives.[68]

Prior to the establishment of the ITA, an association called the Heavy Industry Training Advisory Committee started work on a project to improve the industrial electrician apprenticeship project. This project was in response to the identified need for a program suited specifically to the needs of industry. This was a joint initiative of the Heavy Industry Training Advisory Committee, which represents employers from the pulp and paper, oil and gas, mining and smelting, and solid wood sectors. Organized labour, which represents the BC Federation of Labour, is also represented, as are five of the large labour unions (two of which were the CEP and PPWC).[69] They formed a labour market partnership agreement supported by Human Resource Skills Development. This project was an early start in setting the direction for the apprenticeship program in British Columbia with modular-based training.

Under the new ITA structure, industry will help lead the development of a sustainable training system that better meets the needs of employers, apprentices and the

[67] Industry Training Authority, *A New Direction.*
[68] Resource Industry Training Organization, *HITAC General Committee Meeting Presentation*, (November 2, 2006).
[69] HITAC, *Labour Industrial Electrician Apprenticeship Project*, Bulletin #5, (December 2005).

changing labour market.[70] This new model of apprenticeship training will provide flexible ways to achieve competency-based credentials, such as modular training. Modular training offers the choice of certification with the core components of a trade and completing modules specific to the industry and environment they will be working in.

The following is an example of how the modular approach will work. An electrician would complete the core modules to meet the trade requirement, and then select and complete modules more appropriate to a particular industry, for example heavy industry electrical work rather than residential electrical wiring. This approach allows employers to develop tradespeople with more specific and valuable skill sets. It also allows the apprentices to choose streams of training more appealing to them.

The changes occurring with the apprenticeship program at a Provincial level are an indication of the recognition that the programs of yesterday will not satisfy the needs for skilled trades in the future. These changes also acknowledge by industry and educators alike the complexity and depth of the skilled trades shortages.

[70] Industry Training Authority (Online), http://www.itabc.ca, (Accessed November 13, 2006).

CURRENT TRADE STRATEGY

Skilled trades employees are the most critical component of the maintenance workforce at the Kamloops Pulp Mill. Their work is the foundation of the maintenance program and equipment reliability. Both of which are essential to compete efficiently with a low cost strategy.

The Kamloops Pulp Mill ranks poorly in the number of tonnes produced per maintenance employee when compared to other Canadian and North American mills (sixteen out of eighteen, and twenty-fourth out of twenty-sixth, respectively). However, their ranking against these same mills on the number of tonnes of pulp produced per total headcount increase substantially to place them in the middle of the pack.

A comparison to the Canadian mills of total maintenance costs places Kamloops at twelfth out of eighteen. [71] Although their total maintenance costs are only slightly higher than the average total maintenance costs of the Canadian mills, it appears that the headcount of maintenance employees is higher than most of the other mills.

Based on this type of comparative data in an increasingly competitive market, the Kamloops Pulp Mill has focused more on downsizing and flexible work practices than apprenticeships and recruiting. Since the conclusion of the 1998 collective agreement bargaining, when flexible work practices became part of the agreement, downsizing has resulted in total employee head count reduction from 645 to 465; an overall twenty-eight

[71] PricewaterhouseCoopers, *Market Pulp Study*.

percent reduction. [72] The skilled trades workforce has gone from 204 in 1998 to 152 is 2006; this is a reduction of greater than twenty-five percent.[73]

The approximate cost of one person (one head count) is $100,000 per year.[74] This estimate is an average based on straight time and overtime wages, and benefits. The reduction of 180 employees effectively reduces annual costs by $18 million dollars. The reduction of fifty-two maintenance skilled trades reduces annual costs by $5.2 million.

The efforts associated with the implementation of flexible work practices and head count reduction have had a large positive impact on cost reduction. These reductions have occurred over the last eight years, and have essentially been the focus of the trades strategy.

Attrition and early retirements have been used to reduce head count, but not all vacancies result in the elimination of a skilled trades position. When these vacancies occur, the Kamloops Pulp Mill either recruits and hires an external qualified candidate, or initiates an apprenticeship. External recruiting has been the preferred approach to fill vacancies over the last fifteen years. Forty of the last fifty tradespeople added to the seniority list at the Kamloops Pulp Mill in that time, were hired from the external skilled trade labour market.[75]

Although the Kamloops Pulp Mill does not have a well develop or articulated trade strategy, it is apparent that the focus has been in three key areas: 1) Trade

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[72] Weyerhaeuser Kamloops Pulp Unpublished *Mill Staffing Plan*, (January, 2006).
[73] Weyerhaeuser Kamloops Pulp Mill Unpublished *Seniority List*, (May, 1998).
[74] Douquette, C., *Personal Interview*.
[75] Weyerhaeuser Kamloops Pulp Mill *Seniority List*, (July 2006).

Flexibility and the reduction of head count, 2) Recruitment and selection, and 3) Apprenticeships.

Trade Flexibility

The primary area of focus for the Kamloops Pulp Mill in a trades strategy, particularly since 1998, has been the pursuit of more flexible work practices. Trade flexibility is a concept where tasks are completed by skilled trades workers who are trained and able to perform the work safely. Inflexibility of the skilled trades workforce refers to the hard trade lines established in historical agreements and practices, and it implies lower productivity. For example, traditionally Millwrights could not perform welding, and tradespeople could not perform the work of an operator.

History

The year 1998 was a significant turning point for the pulp and paper industry in British Columbia. During the collective bargaining, the two pulp and paper unions (CEP and PPWC) and Industry reached an impasse that resulted in a nine-month strike at a Fletcher Challenge Canada mill. The strike was the longest in the history of the pulp and paper industry in British Columbia. The issue was flexible work practices. The impasse concluded with an agreement forced on the parties by an industrial commission. [76]

The bargaining process and subsequent strike concluded in May 1998 with a six-year agreement that included the flexible labour language. In essence, this agreement was forced on the two parties by an industrial enquiry commission and mediators Vince

[76] Phillips, L., *Labour Practices; A Case Study of a British Columbia Mill*, A Thesis submitted in partial fulfillment of the requirement of Master of Arts in Leadership and Training, Royal Roads University, (April, 2002), Page 26.

Ready and Colin Taylor.[77] The language on flexible work practices was included in the labour agreement in exchange for an increase to wages and in conjunction with additional training for employees. However, neither party clarified the implementation of flexible work practices, or defined flexibility.

According to the language introduced in the labour agreement in 1998 "the introduction of flexible work practices is designed to improve productivity, improve product quality, reduce downtime, and lower costs while ensuring that the work is completed in a safe manner."[78]

The Union views increased flexibility as a threat to the number of jobs in the pulp and paper industry. The Local Union was open in their position to not to participate during the implementation of flexible work practices.[79] Their position today is less openly combative, but still not overly supportive of flexible work practices. The biggest fear of the union is job loss and the weakening effect this has on the union. A secondary fear is the deskilling of trades. It is ironic then, that significant job loss has occurred even though full flexibility has not been achieved. Since 1998, fifty-two skilled trades positions have been eliminated. Unfortunately, the job losses that occurred since 1998 have confirmed the fears of unions that flexibility equates to job loss.

The secondary fear of unions is the deskilling of trades and this relates to the concept of craft pride.[80] Craft pride develops through the attitudes of generations of workers and forms the identity and values of skilled trades. Trades people have spent a

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[77] Philips, L., *A Case Study of a British Columbia Mill*, Page 26.
[78] Memorandum of Agreement between Weyerhaeuser Canada, Kamloops Pulp Division and PPWC, Local 10. November 19, 1988.
[79] Phillips, L., *A Case Study of a British Columbia Mill*, Page 3.
[80] IBID, Page 23.

significant amount of time honing their skills and have developed a sense of pride in respect to their craft and skills. Flexibility is seen as erosion or deskilling of their craft as well as a threat to their jobs.

Management's view of increased flexibility is that it is a necessary and welcome step to improve productivity, reduce costs and to stay competitive in a global market. The significant job loss that has occurred throughout the pulp and paper industry in Canada was a necessary cost reduction to stay competitive in the face of increasing global competition. Management also believes that trade flexibility provides gives workers an opportunity to develop and grow their individual skills. Training and experience create better skilled trades, who are able to contribute to the workplace.

Current State

Flexibility is not fully implemented in the British Columbia pulp and paper mills. The expected productivity gains have not been achieved, even though many mills have downsized significantly. Success and progress on flexible work practices varies by mill and by company. Flexibility continues to be a topic at industry bargaining discussions.[81]

The flexibility language negotiated in 1998 and described in the labour agreement indicates that an incremental wage increase was provided to all employees as compensation for full flexibility of workers. So although hourly labour rates increased, the implementation of flexibility was not achieved.

The pursuit of greater flexibility in labour practices at the Kamloops Pulp Mill has been worthwhile as a cost reduction tactic in support of their low cost strategy. The

[81] Unpublished Pulp Industry Meeting Agenda, (June, 2006).

move towards greater flexibility however, is an enormous cultural change. Progress is slow, incremental at best, and difficult to isolate and measure. However, progress has been accomplished. With approximately 200 fewer employees at the Kamloops Pulp Mill, the work must be realized through more flexible work practices.

At the Kamloops Pulp Mill, there are examples of cooperation, and helping co-workers that reflect flexibility. The Maintenance Manager provided two examples of flexible trade practices from the Kamloops Pulp Mill.[82] During a three day planned maintenance outage on the large mill operation, the washer wires were replaced. This procedure requires four people, and before the implementation of flexibility, it would have required four Millwrights. Recently, one Millwright working with three Carpenters accomplished this same work. Although not a direct savings in labour costs, this type of flexibility does allow three Millwrights to be assigned to other work, which may result in a reduction of downtime or reduced costs in another area.

A second example of flexible work practices is a vacuum pump change that takes approximately eight hours. Pre-flexibility this work would require two Millwrights, one Pipefitter, one oiler, and one Welder. Currently, one Millwright and a Welder accomplish this pump change. Recently when this work was completed, the shift Electrician drove the forklift in order to remove the piping. This type of flexibility is a more efficient use of resources and lower cost.

These examples indicate that progress has been made; there still may be opportunities to increase the flexible work practices at the Kamloops Pulp Mill. However, the opportunities are not the type of quick wins that are easily identified or

[82] Rankel, T., Maintenance Manager, Kamloops Pulp Mill, *Personal Interview*, (October 26, 2006).

implemented.[83] If full flexibility is achieved at the Kamloops Pulp Mill, then fewer skilled trades workers would be required and this would result in a cost reduction. Ongoing efforts to improve flexibility are not concentrated, but tend to be more issue based. The union continues to resist these efforts.

Resistance to flexibility at the Kamloops Pulp Mill occurs in both formal and informal ways. Formal resistance occurs through the design and structure of the organization. Examples of formal resistance are the concept of seniority, the lines of progression, the job classifications, and overtime provisions. Informal resistance is more subtle, such as co-worker-to-co-worker pressure.

Recruitment and Selection

The second area of focus in the trades strategy at the Kamloops Pulp Mill is recruitment and selection of qualified trades candidates. Eighty percent of the new skilled trades employees in the last fifteen recent years were recruited from the external labour market. Recruitment and selection activities occur regularly with an average of three formal assessment centres per year. Recruitment is easy in an abundant labour market. Selection is structured and complex, designed to weed out all but the best candidates. The approach to both recruitment and selection presumed a large candidate pool for each position.

Recruitment

The recruitment activities have traditionally provided large numbers of applicants with little effort. Advertisements for skilled trades positions at the Kamloops Pulp Mill

[83] Rankel, T., *Personal Interview.*

in the late 1990's returned applications numbering between 150 to 300, while more recent openings in 2006 only surfaced between forty to sixty applicants.[84] This seventy-five percent reduction in numbers of applicants is a direct impact of the skilled trades shortage and the competitive job market.

Recruitment practices at the Kamloops Pulp Mill include both an informal word-of-mouth communication and formal newspaper advertising. The informal communication channel works through the existing workforce to mostly local qualified trades people. The informal communication also extends to contractors providing their services to the site. The formal advertising is through a Weyerhaeuser designated recruitment advertising coordinator, who advises on rates and timing of advertisements.

Skilled trades advertisements run in the smaller, local newspapers to target the local and regional trade labour market and in the larger provincial newspapers for exposure across the provincial trade labour market. Advertisements run in other select newspapers depending on the specific trade and perceived supply of that trade.

For example, the Edmonton Journal targets Electricians and Instrumentation Mechanics, as the Alberta oil industry utilizes a significant number of these trades. Candidates from Northern Alberta are drawn to the Kamloops location for climate, amenities and other characteristics. Other, small community newspapers in British Columbia, such as the Prince George target communities that have operating pulp mills and therefore a supply of skilled tradespeople with pulp mill experience.

The trades recruiting advertisements run on weekends as these days have the highest readership levels, according to Mydland Advertising Agency (Weyerhaeuser's

[84] Weyerhaeuser Kamloops Pulp Mill Unpublished, *Candidate Listings*, (July, 2006).

preferred supplier).Costs for a one-day advertisement, approximately four by five inches runs from $400 for a small regional newspaper to $3,300 for provincial newspapers.

Selection

The selection practices for the Kamloops Pulp Mill are long established processes for Weyerhaeuser in Canada. Each new hire of a skilled tradesperson involves extensive resources and follows a prescribed, lengthy process. The selection process, referred to as an Assessment Centre, includes, but is not limited to the following steps:[85]

- short listing or pre-screening against established criteria;
- phone interviews,
- psychological profile testing,
- aptitude testing
- site tour
- group exercise
- structured interview
- patterned interview
- technical interview
- psychological interview
- reference checks.

[85] Weyerhaeuser Canada Unpublished, *Assessment Centre Training*, (January, 2004).

These steps are described in more detail to demonstrate the complexity of the process and the significant amount of resources required.

A large amount of resources is required for the skilled tradesperson selection process for the Kamloops Pulp Mill. The human resources manager, maintenance superintendent, maintenance supervisors, trained assessors from other departments in the mill, and administrative support will all have a role in the process. In addition, an external consultant, who is an industrial psychologist, interprets the psychological and aptitude testing, interviews the candidates, and provides insight into the candidate's character.

Short listing and phone interviews narrow down the list of candidates and require the involvement of at least two supervisors or managers. This step takes two to four weeks depending on the number of applicants. Candidates on the final shortlist attend a two day "Assessment Centre", complete, and submit psychological testing materials prior to the assessment.

Candidates participate in aptitude testing, and complete a detailed experience form. A site tour provides an opportunity for a maintenance supervisor to observe them in the field. Maintenance leaders have an opportunity to meet the candidates during an informal lunch.

The team exercise allows opportunity for further observation and assessment. This selection tool has candidates working together on a task and provides the assessors an opportunity to observe their style, level of participation, nature of interactions, and their communication abilities.

The formal Assessment Centre is held off-site in a hotel that can provide the required five meetings rooms. Six trained assessors conduct three different interviews - a structured interview, a patterned interview, and a technical interview. The industrial psychologist meets with all candidates one-to-one. Following these interviews, the assessors spend thirty to sixty minutes per candidate to summarize their findings and agree on overall ratings and hiring recommendations.

The hiring manager and/or the human resources manager conduct reference checks on the top candidate(s) as the final step before an offer of employment is extended to the candidate.

The total time line associated with the selection process runs from six to ten weeks, depending on the quantity and quality of candidates, and on the availability of management resources to participate in the process. The entire time line for recruitment and selection can stretch out to twelve weeks, which increases the risk that candidates either loose interest or accept other jobs.

The recruitment and selection process is lengthy and requires significant resources. A cost estimate for each assessment centre, including advertising, is approximately $15,000. This includes the direct costs, such as hotel facilities, travel for candidates, and psychologist's fees, as well as indirect costs, which are primarily wages for internal resources.

Apprenticeship Program

The third and smallest area of focus for Kamloops Pulp Mill is the internal apprenticeship program. The Apprenticeship Training Program described in the Main

Section of the Labour Agreement refers to the general principles of a joint committee structure and a purpose to provide tradespeople of the highest calibre.[86]

The objectives of the joint committee are to establish in-plant training programs, set standards, and review these periodically. The most noteworthy function of the committee has been the creation of a joint selection process for internal candidates. The Kamloops Pulp Mill selection process for new apprentices is located in the Local section of the Labour Agreement.

The Kamloops Pulp Mill initiated very few apprenticeships during the nineties, primarily because there was disagreement on the selection process. The selection criteria used prior to 1998 was heavily weighted to the seniority of the internal candidates. Management found this practice to be less than satisfactory. [87]

An apprenticeship selection agreement negotiated in 1998 at the local level, with some minor updates in 2002, is the version included in the Local Section of the labour Agreement that expires in 2008. Hourly employees must have five years of employment in order to challenge a series of aptitude tests. If successful, the five senior candidates move forward to the joint interview process.[88] Two separate interviews are conducted, a structured interview and a patterned interview. The wrap up process for the interviews is a detailed numerical rating system.

The testing regime is a comprehensive series of six tests – understanding instructions, working with numbers, mechanical comprehension, faultfinding, motor

[86] Collective Agreement Between Weyerhaeuser and the CEP, Local 10-B, (2003-2008), Main Section, Page 90.
[87] Rankel,T., *Personal Interview.*
[88] Collective Agreement, Local Section, Page 20

coordination and manual dexterity. Two separate third party vendors with expertise in reliable testing tools supply the professional testing materials. Qualified individuals administer the employment testing. Following a challenge by a Kamloops Pulp Mill employee, Saville and Holdsworth validated the tests through an independent study conducted by the Kamloops Pulp Mill in 2002.[89] The study confirmed that the group of tests was valid as a performance predictor for industrial trades apprenticeships.

The apprenticeship candidate testing requires minimum scores with an opportunity to combine scores in the two categories that are more heavily weighted (mechanical comprehension and working with numbers). The five senior, successful, candidates move forward to the interview process.

The apprenticeship interview process is administered jointly (union and management) and scored using a detailed rating system of six key characteristics. The interviewers receive training in interview techniques, to be aware of person biases, and on how to calibrate scoring of candidates.

The selection process is comprehensive and provides a reasonable indication of a candidate's ability to be successful in an apprenticeship. Since 2001 there have been six successful apprenticeships completed.[90] However, the current process is not with out issues.

The biggest issues in the eyes of management are that 1) the selection criteria does not include references from co-workers and supervisors, and 2) seniority is still a

[89] Saville & Holdsworth, Unpublished study conducted for Weyerhaeuser Kamloops Pulp Mill, (2002).
[90] Kamloops Pulp Seniority List, (July 2006).

factor in the decision process.[91] An additional concern with the results of the selection process is the age of the new apprentices.

Management prefers a selection process that places greater emphasis on the employees past performance, and less on their seniority. Past performance is an accurate indicator of future performance. A verbal or written reference from relevant supervisors could provide invaluable information in the decision making process. Currently the seniority factor is used to determine the top candidate if ratings are close. Unfortunately, the more senior candidates tend to be older candidates.

A recently apprentice was approximately fifty years of age when their apprenticeship was initiated.[92] Two aspects of the selection process that contributed to this result. Firstly, the minimum requirement of five years of service eliminates newer, and in most cases younger, employees. Secondly, the fact that only the five senior employees are able to go through the interview process, means that only those with more seniority, who are typically older, advance to this step in the process. Both of these requirements help to eliminate junior and younger employees.

The fifty-year-old apprentice could become an effective skilled tradesperson, but the issue is the investment up front to develop an individual who will only work a few years. An individual who starts their apprenticeship at age fifty, would complete at age fifty-four, and is eligible for pension as early as age fifty-five.

A traditional, or rule of thumb cost estimate for an apprenticeship is $250,000.[93] The estimate reflects the cost of training the apprentice over four years, less the deemed

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[91] Rankel, T., *Personal Interview.*
[92] Weyerhaeuser Kamloops Pulp Unpublished *Staffing Plan.*
[93] Rankel, T., *Personal Interview.*

value of their contribution to the work. This rule of thumb indicates the belief that apprentice's contribution outweighs their costs at around the two and half year mark. The actual value of an apprentice's contribution is impossible to determine, as the work they do will be subjective and variable. The $250,000 is likely overstated. They may be performing work of value earlier in the apprenticeship, even if that work is unskilled labour. Consider a simple write-off formula for the cost of training an apprentice, assuming the individual completes their career with the Kamloops Pulp Mill.

Assume the cost to train an apprentice over four years is $250,000, and an apprenticeship takes four years to complete. If the apprentice is fifty years old when they start the apprenticeship, and fifty-four when they receive their journeyman status, they may retire anywhere from age fifty-five to age sixty-five. Experience indicates that, on average, employees retire from the Kamloops Pulp Mill at age sixty-two. A write off over the maximum twelve years of employment for the initial investment in training amounts to almost $21,000 per year.

In contrast, an individual who starts their apprenticeship at age twenty-six and retires at age sixty-two provides a write-off of the $250,000 investment over a thirty-two year period. The initial investment amounts to $7,800 per year.

The rule of thumb view of the cost of an apprenticeship is a common perception at the Kamloops Pulp Mill and makes it difficult to prepare a business case to convince leadership and the corporation to invest in more apprenticeships.

The Kamloops Pulp Mill has not built, nor communicated a solid business case that supports an increased number of apprentices. There are two key reasons for the lack of a business case. The mill has focussed on reducing headcount as a way to reduce

costs, and to improve productivity measured by tonnes per full time employee. This intense focus has not provided opportunity to consider the skilled trades shortage of the future. The addition of apprentices would have potentially increased costs. In addition, external recruitment has provided good results for the Kamloops Pulp Mill in the past. That perceived ability to recruit easily and to get top quality candidates has provided the incentive to continue that course of action when filling vacancies.

From the period 1991 to 2006, there were fifty new skilled tradespeople at the Kamloops Pulp Mill. [94] Only ten of these fifty tradespeople initiated and completed apprenticeships at the Kamloops Pulp Mill. The other forty (equivalent to eighty percent), were hired from the external skilled trades labour market in that same period.

[94] Weyerhaeuser Kamloops Pulp Mill *Seniority List*, (July, 2006).

STRATEGIC ALTERNATIVES

The Kamloops Pulp Mill is already experiencing the impact of the skilled trades shortage. The negative impact of the shortage is observed and measured in two ways: there are much smaller pools of external candidates for job openings, and the turnover of skilled trades from the Kamloops Pulp Mill for reasons other than retirement is increasing.

Recruiting has been the preferred method to supply skilled trades. This approach cannot continue at the same level as it has in the past because it will not be successful. Recruiting from the external labour market for skilled trades surfaces smaller numbers of candidates. The number of candidates applying for these jobs has decreased by as much as seventy-five percent. Although the Kamloops Pulp Mill may continue to try to source skilled trades in this way, the quality of the candidates will likely deteriorate. Assessing smaller pools of candidates may be quicker, but the depth of talent will not be available as it has in the past.

The increase in turnover at the Kamloops Mill is unusual in this environment. Rarely does one leave unless retiring or receiving a severance package. Three skilled trades employees quit in the last eighteen months to go to other employment. Two of the three worked at the mill for less than six months. The competitive job market creates opportunities and choices for skilled trades that have not been available before. Turnover

is likely to increase as skilled trades workers have opportunities to work elsewhere for greater compensation and other incentives.

Increased turnover will complicate the needs of the Kamloops Pulp Mill. The mill requires an appropriate supply of highly skilled trades in order to maintain an effective maintenance program and to run the mill efficiently. Mill efficiency is necessary in order to continue to compete on costs in an increasingly competitive global market. An appropriate supply refers to the right numbers of tradespeople, with the right skill sets who are available at the right time. The mill must have a strategy and a plan to deliver the necessary and appropriate supply of skilled trades.

The current approach taken by the Kamloops Pulp Mill is essentially a mixed strategy that includes a desire to increase trade flexibility, a plan to recruit external skilled trades for eighty percent of the needs, and a strategy to develop internal apprentices for the other twenty percent of the needs.

If the Kamloops Pulp Mill is unable to recruit and hire eighty percent of the necessary trades from the external labour market, then in theory it could increase trade flexibility, and/or create more apprenticeships. There are three flaws with this theory. First, flexibility is not easy to implement as ingrained beliefs and practices do not change quickly. Second, a large decrease in headcount has already occurred, and the incremental amount of flexibility that can be achieved is unknown. Third, it takes a minimum of four years to develop an apprentice into a journeyperson, and it takes a few more years beyond that to develop a master of the trade.

Early planning is essential in order for the Kamloops Pulp Mill to ensure the necessary supply of skilled trades is available. The labour market supply is going to

continue to decrease with retirements of baby boomers. The demand from industry will increase with economic activity in Western Canada. The Mill will not be able to rely on past recruitment practices to provide eighty percent of the skilled trades.

The Mill has focussed primarily on job elimination for the last eight years while the mixed strategy to replace trades was a secondary focus. The recruitment efforts were successful only because the external supply was available. The Kamloops Pulp Mill cannot continue to operate its mixed strategy without jeopardizing the operation, and must look at alternatives to source skilled trades for the future.

There are four options for the Kamloops Pulp Mill to consider in determining the best strategy to provide the appropriate supply of skilled trades. These alternatives are 1) improve trade flexibility, 2) outsource, 3) increase and improve the internal supply of skilled trades through apprenticeships, and 4) alter the recruitment practices to improve and increase the supply of candidates. Each of these options will be discussed in order to understand the changes that could occur and the impact on the business.

Improve Trade Flexibility

Trade flexibility is an ongoing struggle that management at the Kamloops Pulp Mill pursues as a cost reduction strategy. Although flexibility is not the focus of this paper, it impossible to have a skilled trades strategy that does not include flexibility as a major component. All other strategies and tactics should align with the overarching need to maximize trade flexibility. The maintenance labour costs at the Kamloops Pulp Mill are high in comparison to other kraft pulp mills in Canada and North America, an indication that the skilled trades may not be as efficient as they are in other operations.

The current state of flexibility at the Kamloops Pulp Mill can only be described as partially implemented. Some work practices have changed as per the examples previously provided. These examples of flexibility are primarily cooperation and assistance between trades people. There are further opportunities to have skilled trades perform work that is within their abilities, rather than passing it off to another trade. In order for flexibility to be fully implemented, individual skills may need to be supplemented. The new provincial apprenticeship approach can provide the means for existing trades people to update their skills though the modular-based training.

Although cost is the main reason to pursue flexible work practices, there are also benefits from a labour relations and an organizational culture perspective. If flexible work practices are improved, then the employees will be more engaged in the work environment where they have autonomy. Employees also have the opportunity for a personal benefit with new skills. These additional skills would enhance their resume if they were to seek employment elsewhere. Tradespeople who undertake modules through the apprenticeship program could receive credit for those modules towards a second trade.

If the union supports the type of organizational change required to fully implement flexibility, then labour relations would be positive. However, if the union continues to disagree with flexibility and tries to prevent its further implementation, then labour relations would be poor and this could have a negative impact on the productivity of the mill.

Full implementation of trade flexibility has not been achieved. It is unclear to what extent the skilled trades can improve their productivity by performing more variety

in their work. Further flexibility may result in lower costs or may provide no incremental cost savings. It is possible that the numbers of skilled trades in each category is not the optimum mix of skills; these numbers in each category can be adjusted. Without openness to experiment in the work design, it is difficult to determine what would the right numbers and best mix of skilled trades.

Improved trade flexibility does not address the fact that the current workforce of skilled trades is aging, close to retirement and soon in need of replacement. Working flexibly cannot cover all of the gaps created by retirements. As a demonstration, the Mill will continue to require a large number of Millwrights, and the Painters will not be able to work flexibly to cover off the duties of a millwright.

Outsource

Outsourcing, commonly referred to as "contracting out," refers to hiring an independent third party to complete some aspect of the maintenance work. There is a significant amount of work contracted out each year, and a large portion of the existing maintenance budget allocated for contractors.[95] The practice of contracting out is already a controversial topic between union and management.

The collective agreement has extensive language on contacting out.[96] Current practices of contracting out are well established. Generally, contracting out is seen as a way to accomplish major maintenance work such as capital projects or upgrades. Disagreement occurs in determining what work fits the definition of major maintenance. The union perceives contracting out as a threat to jobs.

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[95] Rankel, *Personal Interview.*
[96] Collective Agreement, Main Section, Page 48

There is a joint contracting-out committee that meets regularly to review the work contracted out. The topic of contracting out is a re-occurring agenda item on the monthly Union and Management Standing Committee meetings.[97]. There are also grievances in process on specific issues around contracting out. In addition, the labour agreement requires the Kamloops Pulp Mill to contract out work to unionized contractors only, or else pay a penalty to the local union.[98] Management and union have very different views on the practice of contracting out.

The union asks management to explain and justify each piece of work contracted out, as the union believe its members have a claim on that work. Management tries to utilize the maintenance budget and the maintenance resources in the most cost effective and efficient way to benefit the Mill. It can be a trade off to contract out certain work and assign internal labour to other work. The option of contracting out is likely to have a large negative impact on labour relations. Additionally, the skilled trades shortage in British Columbia will also affect the contracting companies.

The supply of skilled trades for the third party contractors will be severely impacted by the shortage. Large contractors that move around to various locations will have additional issues, such as temporary relocation and skilled trades living away from their families, in trying to recruit and retain skilled trades. Although these contractors may currently have the skilled workforce in place, their resources are at risk for the future.

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[97] Weyerhaeuser Kamloops Pulp Mill Unpublished, *Standing Committee Agenda*, (July, 2006).
[98] Collective Agreement, Main Section, Page 50.

The likelihood of successfully contacting out more maintenance work than already done is not great. The risk of negative impact to the labour relationship is high. In addition, the costs associated with contracting out are high. Contractor rates are between fifty and one hundred dollars per hour.[99] The current rate for skilled trades employees of the Kamloops Pulp Mill is $32.37 per hour.[100] It is also more difficult for an employer to monitor the quality of work provided by third party contractors unless there is frequent involvement and review of the work.

Improve Apprenticeship Program

The current numbers of internal apprentices are not sufficient to provide a steady supply of skilled trades. Skilled tradespeople developed through internal apprenticeships will be better prepared to meet the needs of the Kamloops Pulp Mill. They will have the benefit of knowing the site, the people, the equipment and the culture. They will be trained and guided in their apprenticeship by skilled tradespeople who have experience and knowledge of the specific Kamloops Pulp Mill equipment on-site. Their formal apprenticeship training will be attained through the new British Columbia apprenticeship model. This model will be designed by industry, for industry with lots of input from pulp manufacturers.

Some aspects of the apprenticeship program are unsatisfactory in management's view. Potential changes that can increase and improve the internal supply of skilled trades through apprenticeships are 1) improve the selection process, 2) create a solid,

[99] Weyerhaeuser Kamloops Pulp Mill Engineering Department Unpublished Documents, (January, 2004).
[100] Collective Agreement, Main Section, Page 61.

proactive plan to increase the numbers to produce a high quality of skilled trades, 3) consider alternate sources of candidates, and 4) move quickly with all improvements.

Selection

The current selection process produces some undesirable results in terms of performance and age of candidates. Information on candidates' past performance should be considered in the decision process. An internal reference check could provide useful and accurate information.

Targeting youth is an appropriate goal for internal apprenticeships as it is for apprenticeships in the labour market and can be accomplished by removing the barriers that exist in the current selection process. The requirement for five years of employment at the Kamloops Pulp Mill should be changed to one or two years. Seniority should not be the deciding factor when ratings on candidates are close.

The first requirement essentially cuts all of the junior employees out of the internal candidate pool. Unfortunately, the junior employees are the youngest component of the operations workforce. Lowering this requirement to one or two years will result in a broader and younger candidate pool, while still allowing candidates to have a reasonable foundation of experience and knowledge of the Kamloops Pulp Mill. Additionally, if seniority is as a deciding factor in the selection process, then youth is at a disadvantage.

Increase Apprenticeships

The apprenticeship program would benefit from a clear and detailed plan to create more apprenticeships. An appropriate target is fifty percent of the future needs for skilled

trades. The number of apprenticeships in each trade should be balanced to utilize the available resources in that trade and on site without overtaxing the resources with the on-site training. This plan should assume retirements at age sixty-two, and look at the individual categories of trades to project retirements and needs. An apprenticeship to fill a projected vacancy should be initiated two years prior to the projected retirement of the incumbent. This two-year overlap creates a platform for the transfer of skills and knowledge from the experienced skilled trades.

The costs associated with a four-year apprentice are the biggest component of a plan to increase apprenticeships. If $250,000 is the agreed upon cost over the four-year apprenticeship, then the committee should seek ways to shift some portion of that cost. Apprentices could be the vehicle to improve trade flexibility. If the plan was developed jointly between management and labour and it laid out some specific steps to work more flexibly, perhaps with an apprentice as a helper, it might further the implementation of flexibility. This type of trade-off would be difficult to quantify in terms of dollars saved, or dollar-for-dollar trade-off.

Additional funding through government may be available to assist with the costs of apprenticeships. This and other alternate sources of funding should be researched. Costs can also be offset by the reduction of unplanned downtime.

A minute of downtime costs approximately $400. If the mill breaks down and does not run for an entire ten-hour shift, then the loss to the operation is approximately $240,000. Having the right skills on hand to prevent and respond to unplanned downtime is an insurance policy. A highly skilled trades person, who completes an apprenticeship

on-site, will have more specialized knowledge of local equipment and resources and be better prepared to respond.

In addition, the skills of tradespeople educated through the new modular apprenticeship program will be more useful for the Kamloops Pulp Mill. Training that is specific to the Mill's industrial environment will develop Millwrights who will better prepared as newly qualified trades.

The value of a skilled trades workforce to the Mill is high. Skilled trades are essential for an effective maintenance program and for equipment reliability.

Alternate Sources

The only source for internal apprenticeships is operations and support services employees. These employees have a high level of interest in the apprenticeships as an opportunity to secure a skilled trades career. This interest is apparent by the number of employees who bid on recent apprenticeship postings.[101] This internal interest should not preclude the Kamloops Pulp Mill from considering other, less traditional sources such as Aboriginal people, particularly youth and women.

The Aboriginal population of Kamloops is approximately six percent of the total population.[102] British Columbia has the second largest Aboriginal population in Canada,

[101] Weyerhaeuser Kamloops Pulp Mill Unpublished Internal Apprenticeship Job Postings, (2006)

[102] Statistics Canada, (Online), Aboriginal Population Profile 2001, http://www.statcan.ca/start.html, (Accessed November 30, 2006).

and Aboriginals are the fastest growing segment of Canada's workforce.[103] Aboriginal youth is an attractive target local target for the Kamloops Pulp Mill workforce.

Over fifty percent of the Kamloops population is female. Yet, less than five percent of the hourly workforce at the Kamloops Pulp Mill is female.[104] The opportunity to utilize alternate sources for apprenticeships and for the hourly workforce is noteworthy. There are two means to improve the representation of the non-traditional segments. The Kamloops Pulp Mill can hire Aboriginals and women into the operations workforce to become eligible for apprenticeship opportunities. Alternately, the Mill can hire Aboriginals and women directly into apprenticeships.

One way to source Aboriginals and women candidates who can be hired directly into a new apprenticeship or to complete an apprenticeship is for the Mill to establish a relationship with the local technical college. There could identify students who have expressed an interest in the skilled trades, but don't have an employer to sponsor them. Alternately, there may be Aboriginals and women who have completed the electrical trade entry training and exhibited a talent for the trade, but lack an employer sponsor. The local college has a trades technology program, but only the electrical and welding trades align with the skilled trades needs of the Kamloops Pulp Mill.

The advantage of hiring local Aboriginal and female candidates is that they are like to stay with the Mill for the long term. The disadvantage of an arrangement that brings outside candidates directly into apprenticeship roles is that it would not be appealing to the local union as they promote the interests of their current members first.

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[103] British Columbia Chamber of Commerce, *Closing The Skills Gap*, A report of the Skills Shortage Initiative, (April, 2002).
[104] Weyerhaeuser Kamloops Pulp Mill *Seniority List*, (July, 2006).

If the Kamloops Pulp Mill forced the issue of hiring Aboriginals and women directly into apprenticeships it could have a negative impact on labour relations. Hiring non-traditional sources into operations roles so they become eligible for apprenticeship opportunities would be the preferred option.

Act Quickly

The final enhancement to the apprenticeship program must be to act quickly. Apprenticeships take four years to complete. Add to that the time to gain approvals from management, as well as the time needed to select candidates and move resources internally, and the apprenticeship could take five years to complete. By the year 2011, the Kamloops Pulp Mill will to need to replace thirty-three more skilled trades employees who will retire at age sixty-two.

The need to increase the number and quality of internal apprenticeships is great. The skilled trades labour market is getting more competitive, and therefore recruiting will result in smaller candidate pools, and arguable less-skilled candidates. Internal apprentices can provide a more reliable source of high quality trades. The Kamloops Pulp Mill will benefit from internally developed skilled tradespeople with the right skills to support the planned maintenance program, maintenance reliability and the low cost strategy.

Improve Recruiting

The competitive skilled trades labour market is making the recruitment of candidates for the Kamloops Pulp Mill more difficult. The economic growth in Western Canada will continue to create an increase in demand for skilled tradespeople. Recruiting

external candidates will become more difficult with the state of the industry, the change in ownership and the site's need for capital investment. The kraft pulp industry is not attractive to external candidates in comparison to other industries in Western Canada. It is a mature industry suffering from intense global competition and a decrease in demand worldwide. Canadian mills have inherently high cost structures and relatively old facilities. The industry has seen significant closures and downsizing in recent years.

The change in ownership of the Kamloops Pulp Mill will have an effect on its reputation in the labour market. Candidates will learn of the Mill's need for a large capital investment, and the uncertain future of the Kamloops Pulp Mill. All of these factors create a less than attractive picture for skilled trades candidates deciding their next career move.

The primary positive characteristic is the location. The city of Kamloops is an attractive location with a competitive cost of living, and is the Mill's main competitive advantage when competing in the skilled trades labour market. This may not be enough to attract candidates.

Recruiting skilled trades through standard methods may not provide sufficient candidates to meet the short-term needs of the Mill. Alternate labour markets may prove to be successful in creating larger candidate pools. Alternate markets include Atlantic Canada, where mill closures have occurred, and foreign markets, such as Eastern Europe and Southern USA.

Another source of partially skilled candidates is individuals who are halfway through their apprenticeship. The collective agreement contains language that supports

the concept of hiring apprentices with previous training who can be placed into the training program at a level determined by the Joint apprenticeship Committee[105].

Another potential source of candidates for the mill is the skilled trades employees who are retiring from the Kamloops Pulp mill at age sixty-two. Although there is currently no provision in the collective agreement for part-time workers, the growing pool of retirees cannot be ignored. Retirement at age sixty-five is mandatory, but this parameter is already under pressure in British Columbia.[106] The skilled tradesperson may be physically ready to stop working, but the recent retirees possess a large amount of knowledge of the trades, the practices and the equipment. Retirees could perform the skilled trades function on a part-time schedule, or could act as trainers and mentors for apprentices and new tradespeople.

Altering the recruitment practices to improve and increase the supply of candidates is an option that must be pursued. The additional costs would be incremental. These costs would include as travel costs for candidates travelling from a further distance, and more advertising in newspapers and electronic media. Costs associated with part-time workers will be low. The challenge will be to negotiate provisions for part-time workers into the collective agreement. The local union may have objections to the part-time concept, but could find this attractive if integrated with existing pension and benefit plans.

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[105] Collective Agreement, Main Section, Page 90.
[106] Confederation of University Faculty Associations of British Columbia (Online), *Ability Not Age*, http://www.cufa.bc.ca, (Accessed November 15, 2006).

RECOMMENDATIONS

The assumptions of these recommendations are that the Kamloops Pulp Mill will integrate successfully into the New Domtar, and that Domtar will provide the capital investment of $250 million. A further assumption is that the skilled trades shortage continues to be an issue for employers in Western Canada. The actual supply of skilled tradespeople may increase if efforts to entice more youth into trades are successful, or if unforeseen changes to Federal immigration policies occur. If economic activity in Western Canada is sustained, the demand for skilled trades will increase.

The Kamloops Pulp Mill must continue with an over-arching strategy to pursue trade flexibility. The need for skilled trades will increase in conjunction with retirements of the current workforce. Replacements for the skilled trades can be hired from the external labour market, apprenticed on site, or brought in as contractors. The maintenance department may adjust the number of workers in each skilled trade category. There could be less ancillary trades such as Painters, and more Millwrights. There are potential variations within each strategy that can be pursued to achieve the right balance.

After eight years of reducing headcount that resulted in a reduction of maintenance skilled trades of greater than twenty-five percent, the challenge will now be for the Kamloops Pulp Mill to determine the best mix of these alternatives to provide the appropriate supply of skills for the future. The appropriate supply will be the right

number of skilled trades people with the right skill sets who are available at the right time.

In evaluating the options there are three key factors – the impact on labour relations, the relative cost, and the feasibility of that option providing the right skills at right time. Based on these factors, the option to outsource more of the maintenance work is not desirable as it has a negative impact on labour relations, high costs, and medium feasibility of providing the right skills at the right time. Neither recruitment nor apprenticeships are without risks and cost. Expanding recruitment appears to be the more favourable choice due to the lower relative costs; however, the skilled trades labour market is impacted by many significant factors outside of the control of the Kamloops Pulp Mill. The external resources may simply not be available.

Table 3: Evaluation of Strategic Alternatives

	Flexible Trade Practices	Outsource	Expand Recruitment	Enhance Apprenticeship Program
Labour Relations Impact	Negative	Negative	Neutral	Positive
Relative Cost Comparison	Low	High	Medium	High
Feasibility of providing the right skills at the right time.	Low	Medium	Medium	Medium

Table by Author

This paper recommends that the current mixed strategy broaden to include a greater number of apprenticeships. In order to achieve this, the selection process must be improved to remove the systemic disadvantage to younger employees. The following

Table 4 provides a detailed, five-year proposal for the numbers of apprenticeship in each trade based on the predicted retirements of existing employees. The target is to replace fifty percent of the upcoming retirements with apprenticeships, and assumes that each apprenticeship will begin when the current tradesperson is sixty years old. When the retirement occurs, the apprentice will be halfway through their apprenticeship, and will have had the benefit of working with the "master" skilled tradesperson for two years.

Table 4: Proposed Apprentice Plan

	2007	2008	2009	2010	2011
Millwrights	One	One	One	One	
Electricians		One		Two	
Instrumentation		One	One	One	
Pipefitters	Two	One	One	One	
Welders		One			
Carpenters					
HD Mechanics	One				
HVAC					
Machinists			One		
TOTAL	**Four Apprentices**	**Five Apprentices**	**Four Apprentices**	**Five Apprentices**	**Zero Apprentices**

Table by Author

This paper also recommends that the recruiting practices broaden to target skilled trades labour markets other than Western Canada. The depth of the candidate pools should be tracked and measured for each recruitment. If the skilled trades candidate pools continue to decrease, then a specific and detailed recruitment plan will be required.

The final recommendation of this paper is to act quickly to set the direction of the skilled trades strategy. Apprenticeships take approximately four and a half years from

posting to completion. Additional seasoning time will take anywhere from two to five years depending on the individual and the opportunities in the work environment.

CONCLUSION

The Kamloops Pulp Mill must continue to compete on costs. The move to a differentiation strategy may contribute to long-term survival, but such a move will take time. The change in ownership will require a review and approval of all operating plans and business strategies. A large capital investment is essential to the long-term future of the mill.

In the midst of all the changes that the Kamloops Pulp Mill is experiencing and in the face of increasing global competition, the need to maintain a skilled trades workforce is important. An effective maintenance program that improves reliability is essential for mill efficiency, and relies on the skilled trades workforce.

Trade flexibility is an ongoing workplace change initiative and supports the current low cost strategy of the business. The maintenance skilled trades workforce has been reduced by greater than twenty-five percent and the Kamloops Pulp Mill must now work to ensure that a sufficient supply of skilled trades will be on hand for the future.

The Mill has relied on the skilled trades labour market to fill eighty percent of the vacancies. Internal apprentices fill the other twenty percent. The skilled trades shortage has impacted the Mill's ability to recruit. Candidate pools have shrunk, and these smaller pools will result in less qualified tradespeople.

The Kamloops Pulp Mill must operate a mixed strategy to ensure that the necessary supply is available at the right time. This mixed strategy must include a

continued effort to improve trades flexibility, an improved apprenticeship program to provide a larger number of the skilled trades, and an expanded external recruitment program. This paper recommends a detailed apprenticeship plan to increase the number of apprenticeships to fill fifty percent of future vacancies.

The long-term success of the Kamloops Pulp Mill will be determined by the integration with Domtar and the Mill's ability to secure capital investment to replace aging equipment. Ultimately, a skilled trades workforce that forms the foundation of a strong maintenance program and equipment reliability will be essential to maximize the value of the asset.

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