
Canada's Opportunity to Expand the Use of Canadian Wood in the Chinese Market

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Abstract

This report evaluates the market potential of China being a major trading partner of Canada's wood products industry. Canada's reliance on the US market has proved to be unpromising and alternate customers are crucial in staying competitive on a global level. China has emerged as a wood products powerhouse in recent years due to its economic dominance combined with increased capital investments and other demand drivers. The fibre supply shortage in China has consistently been a problem and is an opportunity for Canada to permeate the market. Canada's relation with China has strengthened in the past few years due to educational and marketing campaigns on qualities of wood and wood-frame construction aimed at China. Results show that Canadian wood exports to China have showed progress but Canada needs to continue its marketing efforts to establish a long-term Chinese demand.

KEYWORDS: China, Wood Frame Construction, Exports, Environment, Marketing, Supply-Demand, Wood Products, Housing Market

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1.0 Introduction

Export markets, particularly the United States, have conventionally been the main consumption channel of Canadian wood products. Canada's production capability to produce wood products far exceeds domestic usage, resulting in a reliance on international trade. A combination of factors, including the US housing market collapse, has affected the export market of Canadian products. It is essential for Canada to exploit alternate destinations for their forest products in order to diversify their risk and markets.

China's emergence as a powerhouse in the wood products sector has caused tremendous changes in a global market. In recent years, China's largest wood supplier, Russia has imposed a log export tax which has forced many countries to look for alternative suppliers to source their raw materials. China is dependent on imported raw materials to keep up with their domestic manufacturing. This situation creates an opportunity for Canada to increase the use of Canadian products in the Asian market. In the last decade, Canada has worked closely with China to promote the qualities of Canadian wood and the benefits of wood frame construction (WFC) and has successfully changed the views of China on wood as a building material. Since Canada is not the only country trying to penetrate China's market, it is necessary that Canada expends adequate resources to keep in good relation with China.

First this essay will provide a background of Canadian wood exports and an analysis of the current situation revolving around the US housing market and the opportunity in China. The growth of China and its wood industry are then discussed with emphasis on Canada's efforts in promoting wood-use. To conclude, the author evaluates the current situation and provides recommendations for Canada to be an active participant in China's market.

2.0 Background

2.1 Brief History of Exporting Canadian Wood

The wood products industry has always played a large role in Canada's economy due to the country's abundance of natural forests and its proximity to the United States. Total export of forest products from Canada was valued at \$2.74 billion USD in 1970 and has grown to \$16.5 billion USD in 2009, a 502 percent increase (FAO 2011). In 2001 alone, the wood industry contributed to 2.9% of Canada's GDP (Dufour 2002). In 2006, the Canada lumber industry accounted for approximately 4% of the country's total merchandise export by value. Conventionally, the consumption of Canadian lumber products has relied on export markets since the 1950's. Even in the 1980's, domestic demand of Canadian softwood lumber was less than 25% of the total production volume (Cohen 1994).

Canada's lumber industry has heavily relied on United State's consumption in the past 50 years, particularly in British Columbia, where approximately 50% of the lumber shipments were headed towards the US (Cohen 1994). Multiple disputes between Canadian and US companies involving millions of dollars in the early 2000's created an uproar regarding stumpage fees and duty tariffs. A softwood lumber agreement was signed in 2006 by the two countries to settle the current dispute while laying out a framework for future disputes (Government of Canada 2006). The conditions of the agreement also outlined the duty fees and stumpage fees associated with softwood lumber trading. History has shown that being over-reliant on a single export market has proven to be ineffective in the long run.

2.2 Current Situation

The forest products sector of Canada is still heavily reliant on international markets. For example, in 2009, 42% of the total production (11 million m³) of wood-based panels was consumed by the export market (FAO 2011). The trade surplus of forest products in 2009 was \$14.4 billion, meaning that Canada's export of forest products is much higher than its imports (FPAC 2009).

The table below summarizes the total export value of Canadian wood products in selected years for certain destinations. In 2006, United States consumed over 86% of the total exports of wood products by Canada but has decreased dramatically in recent years due to reasons explained in later sections. Japan's export value has also followed United State's trend, but to a lesser extent. In contrast, China's import of Canadian wood products has grown noticeably. In 2006, China only consumed CAD\$108 million worth of Canadian products (0.6% of total Canadian exports), whereas in 2010 this number had grown 6.6 times to claim 8.6% of total export value of Canadian wood products (Industry Canada 2011).

The trends in export quantity and value experienced by Canada in the past five years give strong implications as to how Canada should adjust its trading structure to adapt to market changes.

Table 1 - Total Canadian Wood Product Export Values for Selected Years (value in 000's of CAD\$)

<Source: Industry Canada 2011>

	<u>2006</u> (% Total Exports)		<u>2008</u> (% Total Exports)		<u>2010</u> (% Total Exports)	
<u>United States</u>	\$14,594,655	(86.4%)	\$7,392,487	(77.4%)	\$5,796,853	(69.4%)
<u>Japan</u>	\$1,172,240	(6.9%)	\$872,387	(9.13%)	\$826,045	(9.9%)
<u>China</u>	\$107,988	(0.6%)	\$211,381	(2.2%)	\$714,194	(8.6%)
<u>Others</u>	\$1,010,252	(6.1%)	\$1,075,561	(11.3%)	\$1,014,040	(12.1%)
<u>Total</u>	\$16,885,135	(100%)	\$9,551,816	(100%)	\$8,351,132	(100%)

2.2.1 USA Housing Market Downturn

The breakdown of the US housing market in recent years contributed to the recent economic recession suffered worldwide. Prior to the collapse of the housing market, average annual housing starts were 1.3 million units (Urban Futures 2010). Record low annual housing starts of approximately 500,000 – 600,000 units were experienced in 2008 to 2010. The collapse of the market was also due to the high vacant housing inventory (Cohen 2010). Currently, there are 10 million vacant units, which amount to a 9% vacancy ratio of all housing units in the United States (Urban Futures 2010). This level of housing vacancy alone will hold and slow down the demand for new and existing houses.

Unemployment rate in the US have also reached its highest point since the 1950's. The current 10% unemployment rate has pressurized and discouraged individuals from considering housing changes. People's value towards money and disposable income change in times of economic slumps and also directly affect the sales and construction activity of houses (Urban Futures 2010). Financial institutions are also to blame, too many mortgages were handed out to the credit unworthy resulting in one out of every 8 homeowners not being able to pay their mortgages in 2009 (Cohen 2010).

The downturn of America's housing market provides great implications to Canada's future in exporting structural wood products. Export of structural products such as lumber, plywood and oriented-strand board have decreased dramatically due to the US housing market.

2.2.2 Opportunity in the Chinese Market

Rapid economic growth in the past decade has made China a primary target for many countries as a destination for its exports. Urbanization combined with increased consumer income has also generated a larger demand for finished wood products. As China's wood products sector has grown intensely, so has its demand for wood fibre. The natural forests and domestic production of wood fibre is not sufficient to satisfy China's growing consumption rate. The Chinese wood industry now relies on the import market to keep up with their production and is an opportunity for countries such as Canada to penetrate the market share. The following sections identify the reasons of growth and opportunity openings in China's wood products sector.

3.0 China's Market

3.1 Booming Economy

China, in the past 30 years, has grown to be the second largest economy in the world. The growth of the Chinese economy commenced after the introduction of multiple economic reforms by the government (Morrison 2009). The reforms included incentives to farmers and businesses to operate in the free market for the purpose of encouraging exports and foreign investment to the country (Morrison 2009). Under the new structure, companies were less constricted to the directions of state-planning and more permitted to operate within the free market principles (Holz 2005).

The development of China's economy in the past decades has converged to two main causes: productivity growth due to the reform and significant capital investment from domestic and foreign sources (Morrison 2009). Total utilized foreign direct investment (FDI) amounted to \$103.7 billion USD in 2010 (Ministry of Commerce, China). This amount of utilized FDI has grown 146% since year 2000 and continues to increase, illustrating China as a popular destination for foreign investments. The inflow of FDI has played a large role in the economic development of China, supplying resources for industrial expansion as well as providing employment to the local community.

In 2009, China surpassed Germany as the largest merchandise exporter in the world (\$1.2 trillion USD) and second largest importer (\$1.0 trillion USD), behind the United States (WTO 2010). China accounts for nearly 10% of global merchandise exports with its main trading partners consistently being Japan, USA and EU countries (Morrison 2009). China has also suffered damages from the economic recession in 2008, with sharp declines in exports, imports and FDI inflow. This is mainly due to the fact that United States, China's largest trading partner, has endured the most damages of any country. Remediation measures have been performed by the Chinese government to lessen the effects: including a stimulus package, lowering interest rates and loosening loan requirements (Morrison 2009). Though China's continued economic growth seems to be promising and optimistic, it is uncertain whether China's booming economy is sustainable.

3.2 Emergence as a Wood Products Powerhouse

The emergence of China as a dominant player in the wood products industry has transformed the industry on a global scale. Figure 1 illustrates China's increased imports of forest products in the last decade. In 2001, China imported \$13.7 billion USD worth of forest products and has grown to \$23.65 billion USD by 2009 (FAO 2011). China's progress in the wood products industry has shocked the world, and is now the largest exporter and second largest importer of wood products by value (Cohen 2010). China has excelled in all aspects of the industry, from lumber production to wood-based panels and furniture production.

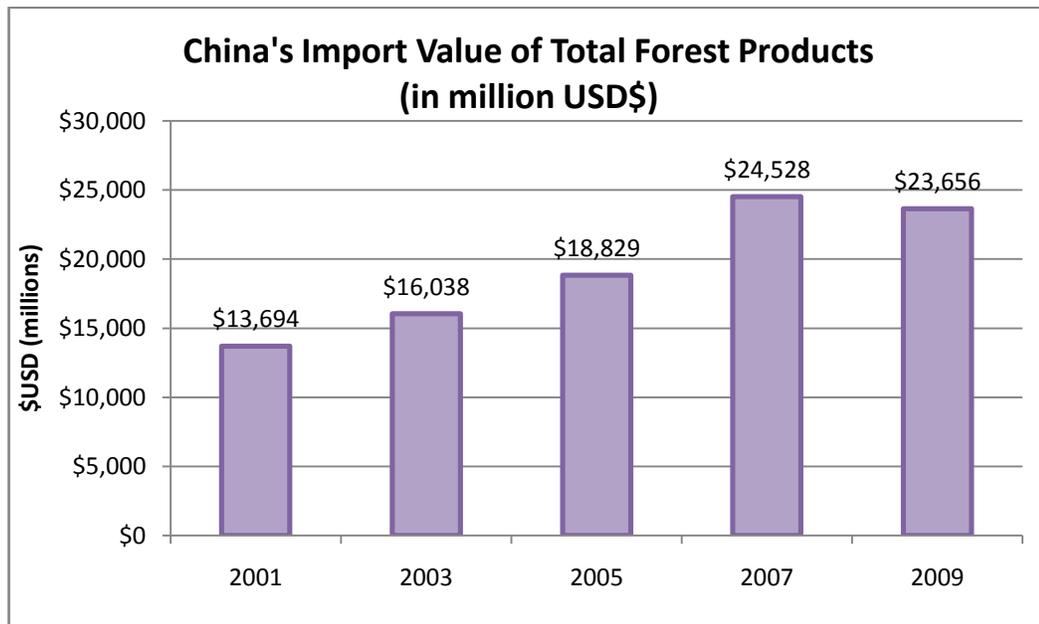


Figure 1 - China's Import Value of Total Forest Products (million USD\$) <Source: FAO 2011>

China's production of wood panels has shown exceptional growth in the past decade. In 2000, China produced 19.3 million cubic meters of wood-based panels and production has grown to 94.4 million cubic meters in 2009, a 390% increase (FAO 2011). In 2008 alone, China accounted for 30% of the global production of wood based panels (Cohen 2010), far ahead of any other producer. The majority of China's wood-based panel production is consumed domestically, mainly to support the production of furniture and the construction industry.

Chinese wooden furniture production has also claimed number one spot on the world stage. Production value of wooden furniture has increased from nearly \$20 billion USD in 2001 to over \$105 billion USD in 2009 (Taylor 2010). As shown in Figure 2, exports in furniture have also shown a consistent increase since 2003. Wooden furniture production is also a huge consumer of the large-scale wood-based panel production by China.

Chinese furniture exports, 2003-2009

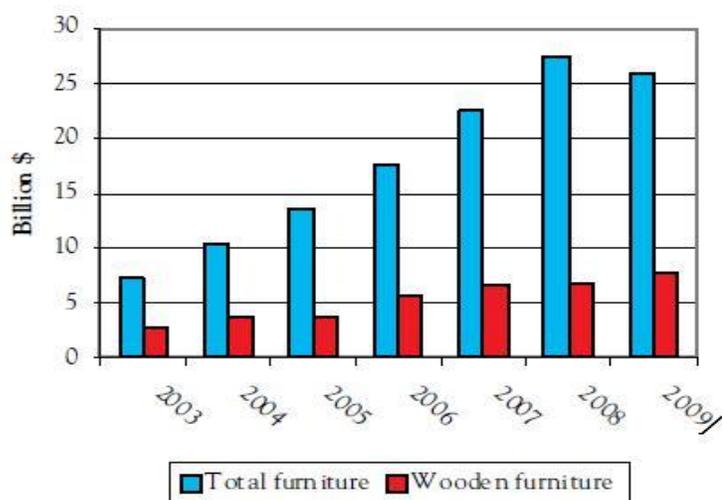


Figure 2 - Chinese Furniture Exports 2003-2009 (Source: UNECE 2010)

3.3 Production Growth

The unprecedented growth of China as a forest products producer in the past decade has changed the entire industry as a whole. The value of total forest products output by China was \$190 billion USD in 2008, a 3-fold increase from 2002's output of merely \$60 billion USD (UNECE 2009). Despite the global economic recession in 2008, China has already shown a rebound in performance and output. The growth of China's forest industry can be explained by a multitude of demand drivers. First, the strong economy of China in recent years has boosted the demand and production of wood industries. The booming economy has also stimulated urbanization combined with population growth in large cities. Second of all, increased capital investments from foreign and domestic sources have allowed the industry to expand and develop to improve capacity and productivity. Lastly, technological improvements combined with changing policies have allowed Chinese businesses to enhance their business structure and production.

3.4 Supply - Demand Gap

Wood fibre supply in China has consistently been a problem in keeping up with the country's ever-growing production in wood products. The total forest area in China is 195 million hectares, with plantation forests covering 61.7 million hectares (USDA 2010). The area of forests attributed to plantations have been growing in past years in an effort to encourage tree farmers to plant their own trees to gain property rights of those trees (USDA 2010). In the late 1990's, several natural disasters and improper use of forested lands have focussed the Chinese government's attention on deforestation and

sustainable forest management. In December of 2000, the Chinese government officially announced the National Forest Protection Program (NFPP), an outline ultimately aimed at reducing annual timber harvest (Cohen and Vertinsky 2002).

China's growing consumption of wood fibre has increased its reliance on imported products. In terms of logs, China's consumption has grown from nearly 60 million m³ in 1999 to over 100 million m³ in 2007 (UNECE 2009). During this time, China's imports of round-wood have also grown substantially, from 10 million m³ in 1999 to 37 million m³ in 2007 (UNECE 2009). In 2006, it was estimated that 40% of China's total wood fibre consumption came from imports (Cao 2008), a significant indicator of the inability of China's forests to supply its production demand.

The fibre deficit in China will continue to be a problem as China's wood products sector is expected to maintain growth. A study conducted by WOODMarkets, indicates a supply-demand gap of 100 million m³ round-wood equivalent (RWE) of fibre in 2010 and this number is expected to increase to 150 million m³ RWE in 2015 (Taylor 2010). Figure 2 shows the supply-demand gap of wood fibre for 2010 and forecast for 2015. China's future lies in its growing stock of plantations (mainly of eucalyptus and other fast-growing species) to counterbalance its reliance on imported fibre.

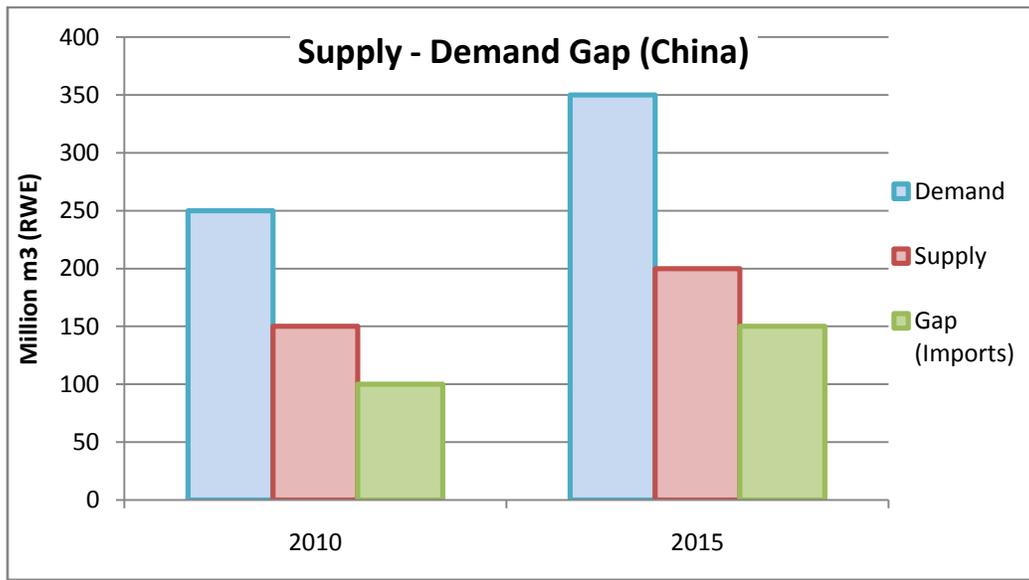


Figure 3 - Fibre Deficit of China <Source: Taylor 2010>

In August of 2010, China passed the “National Plan for the Use and Protection of Forest Land (2010-2020)” as a framework to expand and sustain the country's forests in the next decade. The plan is aimed to increase the country's forest coverage to 23% and to increase forest volume as well as harvestable woodland. In the meantime,

China's supply shortage of wood fibre is an opportunity for countries such as Canada to increase its exports to China.

3.5 Russia's Log Export Tariff

Russia contains the most natural forests in the world, at 808 million hectares (over 20% of global forest area). Due to its inefficient processing capacity in its wealth of natural resources, on February 5 2007, Russia proposed a 20% log export tax for softwood and a 6.5% export tariff for hardwoods (Eastin and Turner 2009). A summary of the proposed Russian log export tax is summarized in Table 2. The tariff was designed to promote development of the local forest industry while reducing logs being exported out of the country. The proposed tax rate of 80% for softwood logs have been continuously postponed due to global economic conditions and pressure from affected countries.

Table 2 - Proposed Russian Log Export Tax <Source: Cohen 2010>

	<u>February 5 2007</u>	<u>April 1 2008</u>	<u>TBA</u>
<u>Softwood Logs</u>	20%	25%	80%
<u>Hardwood Logs</u>	20%	25%	40%

Russia has traditionally been a strong influence in the softwood log export market. Softwood log export from Russia peaked in 2006 at 37.2 million cubic meters but since the log export tax, Russia's global market share of softwood log export had dropped from 45.3% (2006) to 25.6% in 2008 (Eastin and Turner 2008). The Chinese market have grown and become the main destination of Russian logs in the past decade. Table 3 below summarizes China's significance in Russia's log export market. Russia's log export had grown 31.4% between 2002 and 2006, but had dropped 49% (2008) since the proposal of the export log tariff.

**Table 3 - Russia's Softwood Log Export ('000s cubic meter)
<Source: Eastin and Turner 2009>**

	<u>2002</u>	<u>2004</u>	<u>2006</u>	<u>2008</u>
Total Russia Export	28,309.7	31,078.1	37,195.3	24,993.1
China	12,860.8	13,245.7	19,051.2	17,965.9
China's Share of Russia's Export	45.4%	42.6%	51.2%	71.9%

Although Russia's log exports have declined drastically since the tariff proposal, China's import of Russian wood had only declined slightly. Other importers of Russian logs have shifted to alternate suppliers as the price factor of Russian logs had overbalanced its past advantage of proximity and cost. China must and will shift their log imports from Russia to other cost-effective suppliers to avoid the future 80% export tax. The extreme tax rate will make it infeasible for the Chinese to depend on Russia for log supply, opening up opportunities for countries like Canada to penetrate the powerhouse market of China.

3.6 China's Building Code and Changes

China has traditionally relied on concrete frames as the main method of construction in both residential and non-residential structures. Housing reforms performed by the China government in the past 30 years have increased the amount of land space allocated to residential buildings and allowed residents to take ownership of their own homes. The use of wood-frame construction (WFC) in China has conventionally been low due to standards and misconceptions about wood as a building material. Developers were unknowledgeable and ignorant about the structural properties and environmental benefits of using wood as the frame material of buildings. In 2002, approximately 11,000 WFC houses were constructed in China's large cities (Cintrafor 2002), a large improvement from historical figures.

It has taken years for foreign countries, such as Canada, to educate and convince China's government and developers of wood's advantage over concrete. Promoting wood's environmental qualities, such as carbon sequestrating and energy efficiency, corresponded with the current green push and global climate issues. WFC homes also have exceptional seismic resistance, which is preferable to China construction especially after the Sichuan earthquake in 2008 (Canada Wood 2008). Table 4 below outlines the range of China building codes affecting WFC homes. The promotional efforts of the Canadian Government have changed the Chinese perception of wood as a material for construction. Though the attitude towards wood has changed, China will still be reliant on high-rise structures for housing which will not include wood as a structural material.

Table 4 - Building Codes in China Relating to Wood Use

	<u>Building Code Title</u>	<u>Description</u>
<u>2002</u>	Code for Construction Quality Acceptance of Timber Structures	-code for inspection and quality requirements for wood frames and products
<u>2003</u>	Code for Design of Timber Structures	-national code for wood buildings, includes design principles, fire protection and preservation
<u>2004</u>	Chinese Timber Structural Design Building Code	-national building code for WFC, includes chapter of North-American style construction
<u>2006</u>	Code of Design on Building Fire Protection and Prevention	-predominant fire code for all construction types, addresses use of wood truss on concrete buildings
<u>2009</u>	Memorandum of Understanding	-MOU with Shanghai to promote WFC for affordable housing
<u>TBA</u>	Technical Code of Glued Lumber Structures	-outlines performance of load-bearing glulam structures, affects larger scaled buildings

3.7 Canada's Relation to China

Canada has worked closely with China in the past decade to promote the use of Canadian wood in the Chinese market. The Canadian wood industry and associated companies have played a significant part in developing the building code changes in China. Several organizations have been formed in a collaborative marketing effort to encourage the use of Canadian wood. Canada Wood and Forestry Innovation Investment (FII China) lead the way in working together with China in demonstrating the benefits of wood use and developing policies and standards on proper wood use in China.

The majority of work performed by Canadian organizations in China involves educating the Chinese government and building-community of wood as a structural material. Numerous seminars, conferences and trade fairs have been set up in recent years by Canadian organizations to inform Chinese builders of wood performance, quality and advantages. The main objective is to change the traditional Chinese mindset of concrete being cheaper, easier to use and more structurally sound than wood. Besides from educational events, a college named after Canada Wood has also been set up to provide training for industry professionals in wood frame design and construction.

With the largest market potential in China, British Columbia has taken the lead in being heavily involved in Canada's marketing effort in China. The Vancouver Pavilion at the 2010 Shanghai Expo exhibited the use of wood as a sustainable material while showcasing British Columbian wood construction methods. The attention gained from the Shanghai Expo was great to influence the international audience of the advantages and environmental qualities of wood use. Shanghai will also support the use of WFC in their new affordable housing project expected to start in early 2011. Industry

professionals and the BC government are involved with the provision of lumber products and quality control of the construction in Shanghai (Government of British Columbia 2010). British Columbia has consistently aided and supported China's reconstruction campaigns involving earthquakes, including an elderly care center and an education facility in earthquake-damaged regions. The support of the BC industry and government has allowed a strong positive relationship to be developed between BC and China.

The promotional efforts of Canada's government and industry have shown promising results. The volume of BC lumber exports to China has grown from 232 million board feet in 2003 to 2.9 billion board feet in 2010, a 12-fold increase (Government of British Columbia 2010). From 2008 to 2009 alone, BC exports of softwood lumber to China increased by 78% by value (Shrier 2010). Though the majority of BC's increase in wood exports to China has been due to Russia's export tariff, the promotional efforts of BC and Canada are unquestionably significant in gaining China's trust and confidence in Canadian wood and WFC.

4.0 New Opportunities

Due to increasing global concerns over the use of illegally sourced wood, new policies have been established which will affect the export-import market for wood products. United States have enacted the Lacey Act in late 2008 to prohibit the import of illegally sourced timber and logs. The amendment requires that wood imports must be documented with the source, quantity and value to facilitate and encourage importers to legally supply any wood products entering USA. As the largest economy and a wood products powerhouse, USA's Lacey Act will affect many wood-products producing countries, such as China. In 2006, China's total wood exports to US were valued at over \$10 billion USD and 32-40% of that value are illegally sourced (UNECE 2008). The European Union has also passed the Forest Law Enforcement Governance and Trade (FLEGT) action plan to combat the use of illegally sourced wood. Similar to the Lacey Act, the EU FLEGT is aimed to reduce the consumption and trade of illegal timber and will require source documentation or licensing. With USA being the largest customer of China, the Lacey Act and EU FLEGT will restrain China from importing their wood supply from uncertified sources. There has been a rush of Chinese companies acquiring FSC certification to fight back in recent years, from 200 FSC certified companies in 2006 to 580 certified companies in 2008 (Cao 2008). China's total plywood exports have experienced steep decreases due to their failure to provide and document legal sources of wood in their products, as shown in Figure 4 (Canby 2010). This poses a great opportunity for Canada, particularly BC, to further push their wood products in permeating China's market. The efforts of BC and Canada in past years will play an effect in China's search for alternative sources of wood.

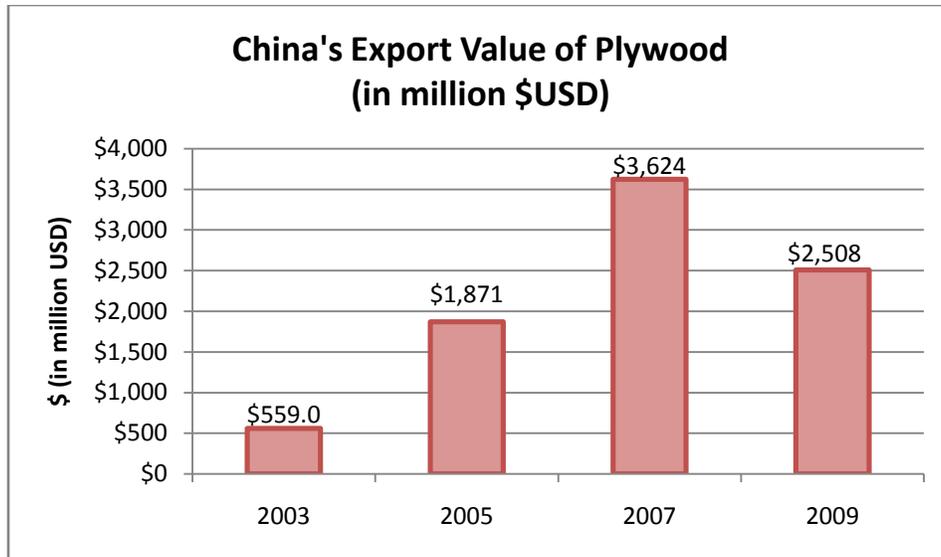


Figure 4 - China's Export Value of Plywood (in million \$USD) <Source: FAO 2011>

5.0 Discussion

China's fibre supply shortage will continue to be a problem in the foreseeable future and it is up to Canada to exploit this opportunity to gain market share in China. Though the plantations in China are growing in size, it is not capable in keeping up with China's productivity growth in forest products. Canada must take advantage of China's reliance on import supply to satisfy its domestic consumption of wood fibre. By continuous marketing campaigns combined with good relations with China, Canada can penetrate the China market while diversifying their reliance on the US.

Canada is known worldwide for its vast natural forests and reputable wood products. Nearly 2.5 million square kilometres of forest cover is available for productive logging in Canada alone. Through the years, Canada has established a strong reputation for quality wood products combined with efficient wood processing. Approximately 10% of Canada's total forest area (4.2 million square kilometres) is FSC certified, meaning that the forest is properly managed according to strict environmental standards (FSC 2011). There are also 993 FSC certified companies within Canada, with 125 being in BC, meaning that their products are tracked and legally sourced from forest to distribution. Other certification programs like Sustainable Forestry Initiative (SFI) and Programme for the Endorsement of Forest Certification (PEFC) total 336 more certified companies in Canada. The amount of certificates and qualified forest area exemplify Canada's commitment in sustainable forestry and proper logging practices. This quality of Canadian companies will help attract China buyers looking to counteract the effects of the Lacey Act and EU FLEGT. As global concern over illegally sourced wood intensifies,

it is to Canada's advantage that they are already certified and can be relied on for legal products.

Canada's promotional efforts in the past few years have helped to develop a stable customer base in China. As explained earlier, wood exports to China have grown noticeably in recent years as a result of marketing campaigns and strong relations between the two countries. Importers of Canadian wood are currently concentrated in coastal and Northern China, and must be expanded into central China for Canada to have a large impact on China's industry. The "Market Street" project, located in the Sichuan province, is one of BC's first projects in central China, showing a rising acceptance of WFC in regions that doesn't conventionally use wood structurally (Government of British Columbia 2010-B). Not only does Canada need to expand its market into central China, it needs to create a long-term demand for Canadian wood. This may be done through contracts and agreements to prioritize Canadian companies, but the best route is by developing a solid healthy relationship with China based on confidence and trust. Retaining a demand for Canadian products is fundamental so that Canada not only opens up a new market in China, but also ensures a dominant position in that market.

British Columbia and Canada have expended a large amount of capital and effort in developing China's trust in Canadian wood in hopes of opening a long-term market overseas to diversify their dependence on the US. Their efforts have shown results with significant increases in wood exports to China. Since China's fibre supply shortage will continue to be a problem, other countries are also exploiting this opportunity to penetrate the market. It will be detrimental for Canada to open China's market for WFC and have it overtaken by other countries. Canada must come to terms with the Chinese industry and government to ensure an influential position in the market. The main competitors threatening Canada are Russia and Brazil. Though Russia had lost a significant amount of market share due to the implementation of the export log tax, its proximity advantage will continue to supply an adequate share of China's imports. In terms of Brazil, recent wood trade data suggests potential increases of exports to China (Cao 2008).

Through Canada's efforts in the past decade, conventional barriers and constraints on the use of wood had been reduced. The marketing trade-shows and campaigns hosted by BC and its industry have influenced China to revise their building codes to encourage wood-use in both residential and non-residential buildings in China. Though entering the China market will be insufficient to replace US as Canada's primary market, being able to diversify risk and be less dependent on a single market will help Canada in the long run. In conclusion, there are several elements that Canada needs to focus on to stay competitive in China's market:

1. Keep in good relation with the Chinese government and companies. Canada must continue its marketing efforts in China to educate and promote the use of Canadian wood.

2. Develop contractual agreements with the Chinese to prioritize Canadian companies in WFC and wood-use. This prevents other countries in absorbing the market Canada opened.
3. To generate China's reliance on Canada for wood-related products. This may be through products other than raw logs and lumber or continue assisting China in its development of building codes and standards.

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